

The Line of Grace: Principles of Road Aesthetics in Design of the Blue
Ridge Parkway

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PhD Thesis

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ABSTRACT

The Blue Ridge Parkway, NC and VA (1934-87) is considered to be one of America's most beautiful roads. However, very little is known about the origins of its physical design or of public response to it. The hypothesis of the research is that the design of the BRP is based upon the eighteenth century aesthetic theory of William Hogarth and Edmund Burke. Hogarth's concept of the serpentine "Line of Grace" and Burke's theory that beauty is connected with emotion *and* motion are reviewed in conjunction with the BRP design. Qualitative and quantitative methods were used to research the hypothesis. Qualitative methods included secondary and primary sources, including elite interviews of persons associated with the early design of the BRP and archival research of design documents and memoranda. Quantitative methods included a pilot and public survey to determine if current public experience of the parkway is consistent with Hogarth's and Burke's theories.

Results indicated that the BRP appears to embody many of the aesthetic principles of Hogarth and Burke. The motor road's spiral curves express the three dimensional characteristics of Hogarth's serpentine "Line of Grace". The parkway landscape reflects the principles of variety espoused by Hogarth and Burke. A direct link to Hogarth and Burke was not found—that is the BRP was not consciously designed according to their theories. However, links to the eighteenth century theories were found in the designers' education and apprenticeship.

Survey results indicate that public response to the BRP design is very positive. The public response particularly supported Burke's concept that a feeling of calmness, or relaxation, is associated with positive perception of landscape scenery.

I. INTRODUCTION

1.1 Background to the problem

The USA has nearly 3.9 million miles (6.3 million km) of public roads which have had enormous impact upon its environment and society. [1] Yet scant attention has been paid to the aesthetic aspect of roads, nor is there a body of road-related theoretical knowledge for designers to draw upon for analysis and inspiration. Many roads, including the entire United States interstate highway system, have been developed since the end of World War II. The net cost for surface transportation (road building and maintenance) in 2002 was 39.69 billion dollars. This figure was approximately 63% of the entire Department of Transportation budget. [2] Although road building and budgets have increased since the end of World War II, involvement of the profession of landscape architecture in most of the important road design issues, such as location and alignment has waned during the past fifty years. [3; 4] Concurrent with the absence of landscape architecture in all but the cosmetic planting design aspect of roads, has been an emphasis by state Departments of Transportation (DOTs) on safety, speed and efficiency over other design issues such as, contextual sympathy, environmental sensitivity and aesthetics. *



Figure 1 – Photo simulation showing proposed road widening project for US 321, Blowing Rock, NC located in the Blue Ridge Mountains close to the Blue Ridge Parkway. This project is typical of many contemporary highway projects throughout the United States. (North Carolina Department of Transportation)

*

For the purposes of this study, a normative view of aesthetics is used, that is aesthetics is considered as it relates to works of art, for instance, the "theory, forms and psychological effects of beauty". A more complete discussion of the term is found later in this chapter in the section "Definition of Terms".

Forman has pointed out the enormous environmental impacts of roads: "One fifth of the total US land area is...directly effected ecologically by our road system" [5]. Research and criticism by experts such as Forman, has been supplemented by public objections directed toward specific road projects. A phenomenon known as "Road Rebellion" surfaced in the 1980's and 90's where communities actively blocked road widening and bridge construction projects in their vicinities. [6]

DOT's have begun to respond to criticism by initiating programmes of Context Sensitive Design, (CSD). Context Sensitive Design is defined as "a collaborative, interdisciplinary approach that involves all stakeholders to develop a transportation facility that fits its physical setting and preserves scenic, aesthetic, historic, and environmental resources, while maintaining safety and mobility" [7]. Some of the goals of CSD, such as the involvement of stakeholders have been relatively easy to define and implement. However, others, such as defining aesthetic goals for roads, have proved more difficult.

This research seeks to assist in developing the theoretical basis for understanding road aesthetics. As such, it attempts to respond to a call for research on the visual qualities and motoring experience issued by the Federal Highways Administration Transportation and Environmental Research Program (1997):

"How a particular stretch of road looks, what it feels like to drive across or to live nearby, or how it affects air and water quality, adjoining landscapes, wildlife, culture and civic life, or the shape and pace of local development are now matters of increasing importance to many if not most Americans. In this context, the growing social and technical complexity of both urban and rural transportation problems demands new tools, insights, connections, and organizing principles that spring from deeper wells of imagination than generally accessible through computer-generated design or formal engineering techniques alone.

Although a significant body of literature exists in regard to bridge aesthetics, formal transportation research does not yet provide a working definition of "successful" highway design in terms of aesthetic, social, and environmental characteristics..."[8].

There are a few American roads (generally parkways dating from 1920 until 1941) which were developed with aesthetics as an important criterion and which have been admired as particularly attractive or beautiful by road users and design critics. The aim of this research is to contribute to the knowledge of aesthetic road design by studying the

aesthetic theory behind a road acclaimed to be one of America's most beautiful roads – the Blue Ridge Parkway, (BRP). The Blue Ridge Parkway, located in North Carolina and Virginia, is a 469-mile long motor road and associated right of way of 800-1000 feet. It is a unit of the National Park Service and was designed for scenic beauty: “The engineering and landscape design standards created for and utilized on the Parkway provided a comprehensive approach for addressing aesthetic and scenic quality goals” [9].

Two broad questions which motivate and underlie this inquiry are: “Why is the Blue Ridge Parkway considered beautiful?” and “What can be learned from its design approach?”

Purpose of the study

The purpose of this study is to explore and identify formal attributes of the BRP associated with aesthetic theor(ies) related to beauty and to test whether those attributes produce the effect predicted by the theor(ies). The nature of the questions stated above seemed appropriate for mixing methods. Using the lens of aesthetic theory, the first phase of the study focuses on intentions and inspirations of the BRP design and its designers. The purpose of the second phase is to determine how the design principles manifest in the BRP are perceived by the public.

This study will attempt to plumb “the deeper wells of imagination” by examining road design from the perspective of normative theory through historical and phenomenological research. Such a perspective is rare in road related research and may result in “insights, connections and organizing principles” that are useful in the consideration of road design.

Theoretical Perspective

This thesis is concerned with normative theory as related to roads and examines the Blue Ridge Parkway because it was a road designed for “scenic beauty” [10]. Groat and Despres (1991), Hillier (1996) and Lang (1987) provide a basis for understanding the reasons for choosing the approach used in this inquiry. Hillier suggests that design theory ought to be based upon scientific (analytic or positive) theory and art (normative) theory. Both types of theory are needed for design, Hillier argues, because scientific theory deals with “how the world is” and normative theory with “how the world might be” [11]. Lang agrees with this position. He asserts that normative theories are often built on scientific ones. “They are based on perceptions of how the world works” [12]. Normative theory is

concerned with “the different positions that have been taken or might be taken on what the built environment and/or design process should be. It is concerned with the views of different designers or schools of design on what the role of the designer is, what a good environment is, and how the design process should be carried out” [13]. Groat and Despres (1991) find Lang’s theory limiting in that he “seems to consider only minimally the possibility of theoretical contributions being made the other way round, i.e. architectural theory contributing to environment-behaviour research” [14]. They assert that architectural (substitute design, art, or landscape architectural) theory does, in fact, “contribute to the advancement of environment-behaviour research” [15]. They contend that environment and behaviour research would benefit by being more concerned with descriptions and explanations of physical form and that design theory is an “appropriate basis for studying the significant physical attributes of the built environment” [16].

A normative approach is used to try to understand how the BRP designers believed they ought to design and their points of reference. I wished to put myself in the shoes of the designers, to understand the possible inspirations and principles for the form that was created. I also wanted to understand how people respond to the design. Thus, the thesis attempts to explore some of the relationships between scientifically based theory and normative theory in an effort to correlate normative design principles with a scientific understanding of road design.

The basic premise of this investigation is that BRP is a designed landscape. As such it was influenced by normative theory and precedent. Ferguson (1999) states: “Each successive generation (of landscape architects) tends to believe that it is starting the world anew without precedent or hindrance. But full professional competence requires respect for how much work has preceded ours” [17]. Therefore, an investigation of the design theory *available at the time* to the BRP designers was undertaken to help to understand why the motor road and scenery are the way they are. The normative theories which form the basis of the hypothesis are explored further in Chapter Two.

I speculate that the Blue Ridge Parkway is an expression of classic principles of aesthetic based theory of 18th century Europe. Specifically, the picturesque theory of England has been an important influence on American landscape architecture. Theorists William Hogarth and Edmund Burke published influential treatises in the mid 18th century proposing fixed design principles. These treatises influenced subsequent writers and

practitioners in England, such as Humphry Repton and Capability Brown. Burke's theory is also known to have influenced the theory and practice of Frederick Law Olmsted, founder of the profession of landscape architecture in the USA. According to landscape historian Charles Beveridge, "Olmsted developed a style of landscape design (in the 1850's) that still exerts a strong influence on his profession and founded a firm that dominated that profession for nearly a century"[18]. Chapter 5 of this thesis establishes a link between FLO, Sr. and the Stanley Abbott, resident landscape architect of the BRP.

1.4 Definition of Terms

Aesthetics -- Aesthetics is a difficult term to define. Zee (2003) states "(A)n absolute definition of aesthetic values remains elusive...Aesthetic perceptions differ from culture to culture" [19]. Groat and Wang (2002) argue that that "(A)esthetic experiences are part of the domain of reason, even though they cannot be fully captured by formulas, words, or other determinate models of communication"[20].

Webster's New World Dictionary(1982) defines aesthetics as having to do with theor(ies) of beauty *and* the form and experience of art. Aesthetics is "the study or theory of beauty and of the psychological responses to it; specifically, the branch of philosophy dealing with art, its creative sources, its forms and its effects" [21]. The Art Lexicon (2003) provides an additional definition: "The branch of philosophy that deals with the nature and value of art objects and experiences. It is concerned with identifying the clues within works that can be used to understand, judge and defend judgments about those works" [22].

For the purposes of this study, a definition which emphasises the normative view of aesthetics as related to works of art, for instance, a designed landscape, is used. A merging of the two definitions is proposed wherein **aesthetics** is considered as having to do with **the theory, forms and psychological effects of beauty**. Principles or clues within art forms are useful in understanding the theoretical basis behind them.

Context Sensitive Design (CSD) – a programme calling for "a collaborative, interdisciplinary approach that involves all stakeholders to develop a transportation facility that fits its physical setting and preserves scenic, aesthetic, historic, and environmental resources, while maintaining safety and mobility" [23].

Department of Transportation (DOT) – Federal or state agencies responsible for the design, construction supervision and maintenance of roads. There are also municipal DOT's who have less control over design and are mainly responsible for local streets. Virtually all public road design projects must meet state DOT requirements.

Design theory – Hillier's definition of architectural theory is used in this study. It calls for analytic-normative theory. "Architectural (substitute design or landscape architectural) theories...are about how the world should be, but only in light of how it is believed to be" [24]. Because design is about creating, as Hillier says, "it requires theories of possibility in the sense that they exist in art" [25]. However, Hillier also claims that analytic theory is needed in design, as it is the theory of actuality. In other words design has to eventually exist in conjunction with the scientific laws, i.e., the laws of physics, of the "real" world. "It is the double nature that makes architectural (substitute design or landscape architectural) theories unique. They require at once to have the generative power of theories of art and at the same time the analytic power of theories in science" [25]

Normative theory—Lang (1987) states: "Normative theory is an ambiguous term. To some it means 'What has been consensually agreed upon, the norms for a given time', to others it consists of statements on 'what ought to be –what a good world is' [26]. The second definition is used for this study because this is an inquiry about design and design is about envisioning a future world. It seeks to create the environment as it ought to be, (in the view of the designer). Normative theory is concerned with issues of form and process. Lang states: "Normative theory is concerned with the views of different designers or schools of design on what the role of the designer, or a good environment is, and how the design process should be carried out" [27]. Hillier describes normative theory as concerned with "How the world might be"[25]

Positive theory—Lang's definition of positive theory is used. "Positive theory...consists of positive statements, assertions about reality. This should not imply that it also coincides with the tenets of positivist epistemology, which holds that no truth exists beyond the bounds of possible verification and falsification" [28]. Lang says that positive theory is "ideally...one that has been tested using scientific methods" [28]. In this study, the terms scientific and analytic are sometimes substituted for positive:

“Theories in science are sets of general, abstract ideas through which we understand and interpret the material phenomena the world offers to our experience. They deal with how the world is, not how it might be” [25].

Theory – Theory has been defined in different ways. Kerlinger (1979) provides a sociological definition of theory as “a set of interrelated constructions (variables), definitions and propositions that presents a systematic view of phenomena by specifying relations among variables with the purpose of explaining natural phenomena” [29].

Simon and Burstein (1985) state: “If there are well established assumptions in a field, and if there is an apparatus that permits ...deduction, then one may talk about a body of theory. If so, a speculative statement must be related to this whole body of theory, if it is to be called ‘theoretical’. In other fields, any conjecture or deduction from general experience is called theory” [30].

Hillier’s (1996) definition is considered more appropriate as it pertains to design inquiry: “Theories are propositions about hypothetical processes, which might be responsible for the regularities we see in phenomena... You cannot see a theory, only its consequences, so you cannot verify a theory, only phenomena that are consistent with it.” [31].

1.5 Delimitations

While other theories may have affected the BRP’s design, Hogarth’s and Burke’s have been selected as “points of origin” for the design principles expressed in the BRP design. And while scientific theory may provide reasons for public preference, this study focuses on normative theory as the theory available to the BRP designers. Theories related to landscape preferences are considered for their links to normative theory.

1.6 Significance of the Study

Roads are arguably the most significant and costly public works of American culture. Therefore, their design merits thoughtful consideration including “new tools, insights, connections and organising principles” [8]. Most road related research is concerned with scientific testing of safety and speed issues. Very little work has been done from a normative perspective.

This study takes an unusual approach in that it suggests that normative (art) theory has a place in road design research and that such theory can expand the way roads are

conceptualised. It is significant in that it seeks to enlarge upon and contribute to the body of road design knowledge by identifying principles of design theory manifest in a road known for its beauty, and testing public perception of those attributes. This study seeks to contribute to the body of road design knowledge by exploring normative theory and physical design attributes associated with that theory.

Another aspect of the study is its significance to the profession of landscape architecture. Landscape architects were responsible for the design of the Blue Ridge Parkway. Today their role in the design of American roads is negligible. If the profession is to be reinstated as an important contributor to successful road design, then this study's insights about the design approach, theoretical principles and attributes of the BRP will be useful.

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CHAPTER 2 – LITERATURE REVIEW

2.1 - Introduction

The introduction identified two broad questions which motivate and underlie this inquiry: “Why is the Blue Ridge Parkway considered beautiful?” and “What can be learned from its design approach? This study seeks to contribute to the body of road design knowledge by exploring theory and design attributes associated with the BRP’s beauty. In light of these questions and goals, it was necessary to review four main areas of literature:

1. literature pertaining to the BRP’s design, natural and political histories
2. literature pertaining to American landscape history and theory foundations
3. literature pertaining to road design theory foundations
4. literature pertaining to physical and perceptual foundations

The review of literature related to the BRP included articles about its design, political and natural history texts, theses and preference surveys. A review of road design literature was also necessary to find out about this specialised area of design. Landscape architects wrote about road design in the early part of the twentieth century—mainly as a means of informing practitioners who were engaged in the problems of parkway and highway design. Further writing on road design was published in book form in the mid part of the twentieth century by Appleyard, Lynch and Myer [1], Crowe [2], McCluskey [3] and Snow [4]. Literature pertaining to the physical and perceptual foundations for road design theory revealed that the science of optics and recent landscape perception studies had something to offer in understanding and developing a theory of road design. See Figure 2 for a Diagram of the Literature.

A broad overview of American landscape architecture between the 18th and early 20th centuries was undertaken in order to understand the history, theories and built examples which may have influenced the BRP’s design. This investigation led to a review of 18th century English picturesque theory as one of the foundations of American theory.

A reason for emphasising 18th c aesthetic theory is that it is recognised as having influenced English landscape architects, whose theory in turn, influenced American landscape architects. [5, 6] Repton, for example, notes that he was influenced by William Hogarth’s concept of the Serpentine Line. Price’s attacks upon Capability Brown often revolve around what he considers to be simplistic use of the serpentine line. Repton, Burke and Price among others, are mentioned by American landscape architect Frederick Law Olmsted, Sr. to have affected his approach to design thinking. [7] According to Jellicoe, the English landscape style associated with Capability Brown and Humphrey Repton “has survived, flourished and become universal.” [8] Newton claims that the English picturesque style found its way to the USA in the early 1800’s where it found a “sympathetic home”. [9] If one accepts, as Newton, Jellicoe and other experts do, that America was profoundly influenced by the English landscape school, then the question arises “What is the foundation of theory for the English picturesque?” Who and what influenced Repton and Brown? William Hogarth and Edmund Burke, among others, emerge as thinkers who were taken seriously by other artists and writers and whose ideas impacted subsequent landscape designers.



Figure 1: Literature Review Map after Carroll, 1993

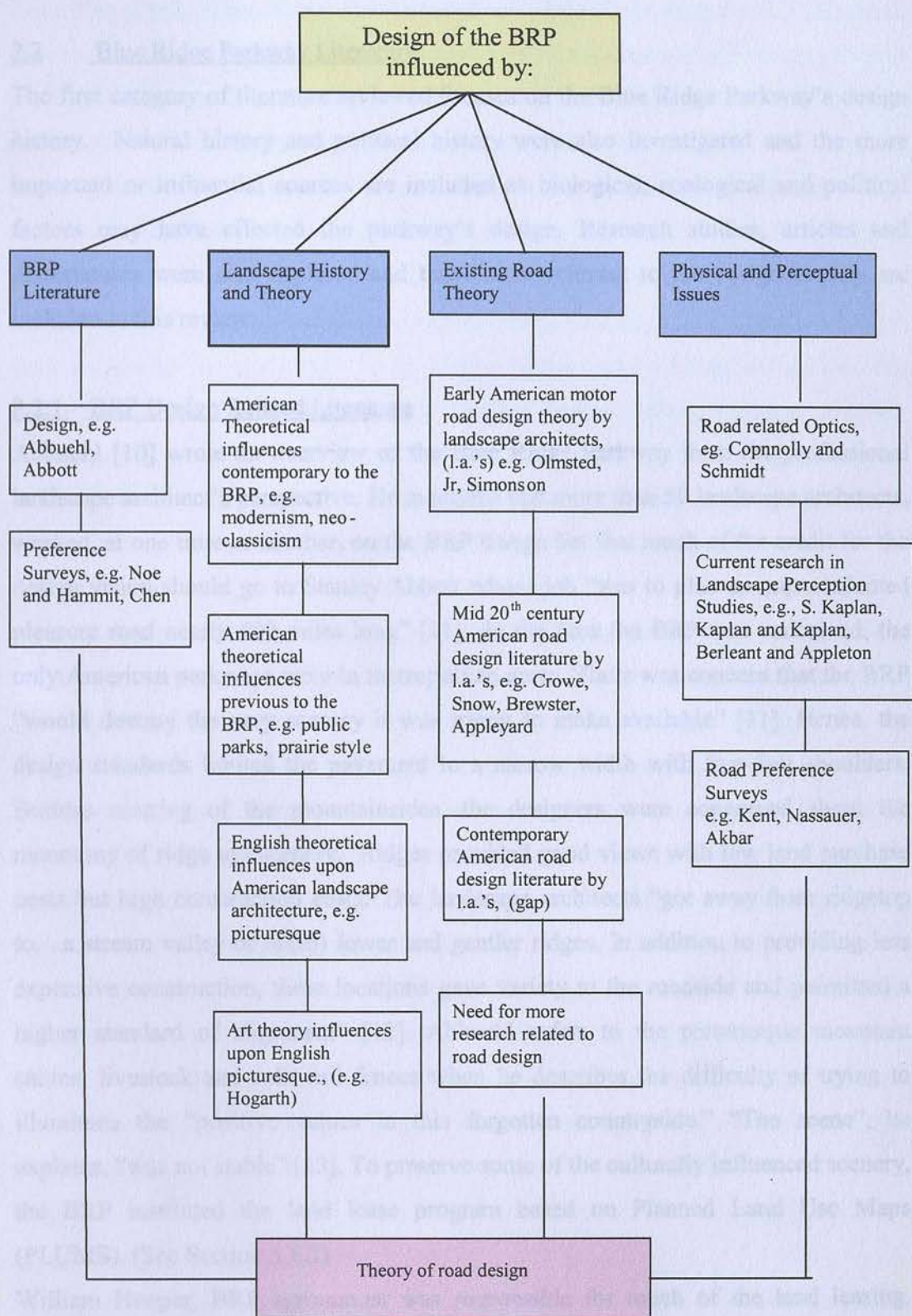


Figure 2 - Literature Review Map after Creswell, 1994

2.2 Blue Ridge Parkway Literature

The first category of literature reviewed focuses on the Blue Ridge Parkway's design history. Natural history and political history were also investigated and the more important or influential sources are included as biological, ecological and political factors may have effected the parkway's design. Research studies, articles and dissertations were also explored and those most relevant to the design inquiry are included in this review.

2.2.1 BRP Design Related Literature

Abbuehl [10] wrote an overview of the Blue Ridge Parkway from the professional landscape architect's perspective. He mentions that more than 50 landscape architects, worked, at one time or another, on the BRP design but that much of the credit for the design vision should go to Stanley Abbott whose job "was to plan an unprecedented pleasure road nearly 500 miles long" [11]. At the time the BRP was conceived, the only American parkways were in metropolitan areas. There was concern that the BRP "would destroy the very scenery it was trying to make available" [11]. Hence, the design standards limited the pavement to a narrow width with five-foot shoulders. Besides scarring of the mountainsides, the designers were concerned about the monotony of ridge top scenery. Ridges provided good views with low land purchase costs but high construction costs. The landscape architects "got away from ridgetop to. ...a stream valley or on(to) lower and gentler ridges. In addition to providing less expensive construction, these locations gave variety to the roadside and permitted a higher standard of alignment" [12]. Abbuehl refers to the picturesque mountain cabins, livestock and split rail fences when he describes the difficulty of trying to illuminate the "positive values in this forgotten countryside." "The scene", he explains, "was not stable" [13]. To preserve some of the culturally influenced scenery, the BRP instituted the land lease program based on Planned Land Use Maps (PLUMS). (See Section 5.6.2)

William Hooper, BRP agronomist was responsible for much of the land leasing. Abbuehl claims that under Hooper's direction the program achieved "phenomenal results." "It has created a delightful roadside picture by bringing the farm scene to the road edge and, by example, has spread good farm practices beyond Parkway lands" [14].

Regarding plants, Abbuehl stated: "There is very little virgin timber left, and second growth forest cover ranges from good to very poor; it requires selective cutting to give the climax varieties a better chance. Vistas are established which may be wide open, canopy-type looking under high-headed trees, shrub bays or vistas *into* the woods. If the roadside is forest, the woods line must be established and may be pushed back to create bays, deckled for interest or brought closer to the road. The plant material is usually so good and abundant that all it needs is a chance to grow. On one occasion the writer stated that much of the landscaping was done with an axe...Spot planting is used at special locations such as buildings, bridges and parking overlooks. The Parkway has also achieved good results with a native seedling planting program. Seedlings are inexpensive, easily planted and readily adaptive to their environment. Where natural regeneration is planned, the introduction of seedlings has the advantage of introducing desirable native species" [15].

Carleton Abbott [16] wrote a book for the National Park Service which outlines and defines the major design elements of the Blue Ridge Parkway in an effort to elucidate scenic road attributes. The book explains and illustrates structural design elements, such as: bridges, overlooks, buildings, walls, tunnels, fences, signs and site details specific to the Blue Ridge Parkway. Abbott, an architect and the son of Stanley Abbott, also discusses the importance of location and alignment to the parkway experience. He draws from the BRP archives, as well as, his own observations as a basis for the book. Beautiful draughtsmanship, archival photos and quotes enhance what is essentially an architectural primer for road designers. This is the most complete book written on the architectural or 'hard' physical characteristics of the BRP. Although Abbott's discussion of general scenic concerns is useful, the book lacks discussion of planting design or the overall approach to the landscape. Landscape theory is also absent.

2.2.2 Natural History of the BRP

Many descriptive guides have been written about the Blue Ridge Mountains and BRP. Most of these have to do with recreational opportunities, or natural science. Wilhelm [17] wrote one of the most informative guides to the landscape of the Blue Ridge Mountains, including Shenandoah National Park and the Blue Ridge Parkway. The book describes natural and cultural landscapes. The present Blue Ridge landscape is

approximately 95% wooded [18]. However, historically, Native American tribes practised hunting and agriculture and altered the landscape by clearing through fire and girdling of trees. In the 1700's, Europeans settled the Native American clearings first, then expanded the agricultural zone from the valley floors up the mountain sides. In the 1800's industries, such as logging, and textile mills impacted the landscape further. Wilhelm claims that the establishment of the BRP and Shenandoah and Great Smokies NP's has resulted in improved conditions for wildlife. "Hunting, trapping and lumbering are prohibited on park lands and all wildlife is protected and encouraged, predator and prey alike [19]. The varied plant and animal life one can encounter in the Blue Ridge are explained in lay terms as this is a guide for the public. Wilhelm also describes the natural history of various mountain habitats, (i.e. cove and hollow, pine forest).

2.2.3 Political History of the BRP

Jolley [20] wrote a comprehensive political history of the Blue Ridge Parkway which traced the parkway from its inception as a scenic ridge highway in 1909 through its construction period. The book is devoted mainly to the political battle over the location of the parkway. The controversy over whether to locate the BRP in Tennessee, North Carolina or both was discussed at national levels—Congress, Senate, Department of the Interior. Eventually, even President Roosevelt was lobbied by the North Carolina delegation in an effort to secure the lion's share of funding for that state. The business community of Asheville, (a tourist centre located in the high peaks district of southwestern North Carolina) was particularly concerned about losing potential income should the BPR be located on the proposed Tennessee route. Asheville lobbied the state governor and US senators who in turn lobbied Secretary of Interior Ickes and other prominent government officials. An effective array of photos, maps and a diorama, was developed by NC as an exhibit to "make the case" for the high ridge location near Asheville. Although Tennessee also lobbied aggressively for the parkway location (and funds), North Carolina was successful in securing the southern section of the BPR entirely within its boundaries, despite the recommendations of Icke's advisory committee. The advisory committee, composed of three government officials of high rank: George Radcliffe, Regional advisor of the Public Works Administration, Arno Cammerer, Director of the National Park Service and Thomas MacDonald, Chief of the Bureau of Public Roads, had "unanimously

advised the adoption of the Maloney or Tennessee route”, proposed by Gen. Frank Maloney, a Knoxville, TN engineer [21].(Figure 3) Jolley describes the intense lobbying by the North Carolina contingent as having influenced Ickes. Another reason cited by Ickes was that “Tennessee already had a recognised and established entrance into Great Smokey Mountains National Park at Gatlingsburg and to give Tennessee the sole entrance would be discriminating against North Carolina...(and that the Tennessee route) would mean 90% of the tourist traffic would (be) channelled into Tennessee” [21]. Ickes also found the North Carolina route to be “more scenic” [22]. “Ickes mentioned as well, his dreams of a great ‘scenic highway which would start perhaps in New Hampshire and follow the first definite line of the mountains west of the Atlantic Seaboard all the way to Georgia.’

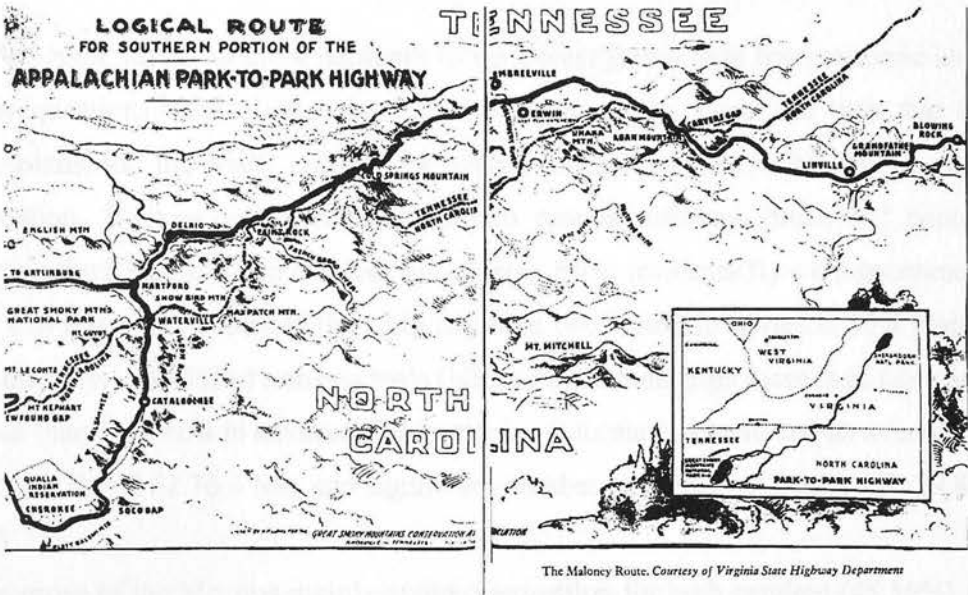


Figure 3 -Maloney route recommended by the Radcliffe Committee (Jolley, H. The Blue Ridge Parkway, p 23-23)

North Carolina’s Blue Ridge route fitted this schemes more acceptably than did the Tennessee proposals” [23].

Jolley’s book is based on archival research and interviews with persons such as Sam Weems, Superintendent of the BPR, Ed Abbuehl, Resident Landscape Architect of the BPR and Senator Harry F. Byrd, VA. The book does not cover the design issues but does discuss some of the operating procedures and separate responsibilities of the National Park Service and Bureau of Public Roads. It also describes construction techniques and includes photos of the construction.

2.2.4 BRP Research Related Literature

BRP research studies and articles have tended to focus on recreation preferences, biology, ecology or land use. Chen's [24] purpose was to estimate the economic impacts of travel to the BRP, North Carolina to compare visitor characteristics, opinions and motivations in order to provide information for better planning. Onsite interviews at four NC visitor centres, (Mt. Pisgah, Folk Art Centre, NC Minerals Museum and Cone Memorial Park) and mail surveys were used to gather data in October 1995. A three-minute interview consisting of five questions ended with participants being handed a self administered diary questionnaire and asked to mail it in. 464 questionnaires were turned in, (out of 883 given out).

Chen's visitor survey is more pertinent to my investigation than her economic study. Survey questions were divided into four types: questions about the visit that day; travel plans for the visit; opinion of quality of the BRP; availability of visitor information. Visitors were divided into two groups: resident (from NC counties adjoining the BRP) and non resident (all others). Most residents(R) were spontaneous about trip plans. 91% planned their trip less than two weeks in advance. 50% planned to go that day. 70.05% of non residents (NR) planned their trips more than two weeks but less than 3 months in advance. Demographic information indicated an average age of 52.16 – R and 52.76 – NR; and significant number of retirees (36.96% – R, 29.85% – NR)

The purpose of the trip was mainly outdoor recreation for both resident (45.56%) and non resident (38.98%) with visiting friends/relatives second, (19.57%-R, 15.38%-NR). Both sets of respondents were travelling with family, (62.22%-R, 68.72% - NR) and friends, (22.22% - R, 14.62% - NR). Chen's question about trip motivation was based on Likert scale (1=not important, 7 = very important). The most important motivations for residents to visit the BRP were to observe the beauty of nature, (6.66 on a 1 to 7 scale), to get away from commercialised tourist traps, (6.2) and to spend time with family and friends (6.05). The most important motivations for non residents were: to observe the beauty of nature (6.65), to have a peaceful vacation (6.02) and to get close to nature (5.97). Residents and non residents engaged in the same activities: visiting a scenic area (80.43% - R, 91.95 – NR) and visiting an historic site (58.7 – R, 67.09 – NR). One of Chen's conclusions is that "(B)uilding awareness and a positive

perception of the BRP as a pure natural scenic destination could influence the decisions of people considering the Parkway for a vacation” [154].

Based on a Likert scale (1= not important, 7= very important) the most important perceived problems were: lack of restrooms (2.71-R, 2.82 – NR) and too much traffic, (2.61 – R, 2.43 – NR). Narrow parkway width was one of the least perceived problems, (1.85 - R and 2.08 – NR). The results indicate that even the highest rated problems are still quite low in terms of perceived importance. A very high percentage of residents and non residents said that they would visit the parkway again (100 – R and 98.74% - NR). This indicates that their experience was extremely positive. Chen makes recommendations such as, promoting the BRP to non residents through organized tourism development strategies. To avoid the perception of too much traffic, she suggests offering touring packages in the off-peak seasons.

Other dissertations related to the BRP (Williams, 1981; McGee, 1985 and Kashkin, 1993) had to mainly to do with management or management perception issues, rather than design and were not relevant to this inquiry.

2.2.5 Summary of BRP literature

The most important result of this part of the literature review is that the findings indicate a dearth of information regarding the theory and inspirations for the BRP design.

The literature related to the history of the BRP identified mainly pragmatic design concerns (Abbuehl) or the “hard” attributes of the motor road, such as bridges and fences (Abbott). Abbuehl identified Stanley Abbott as the chief designer whom he credited for the design vision of the parkway. Abbuehl also described objectives of retaining, emphasising and improving farm scenery through a land lease program (directed by William Hooper); the objective of minimising the “scar” caused by the road construction; and the approach to creating different types of vistas and other landscape experiences. The natural history indicated that the mountain area is naturally very rich in flora and fauna and that the parkway’s status as a national park service unit has benefited both through protective legislation. The political history indicated that the overall route of the BRP was heavily influenced by politics resulting in its location in the states of North Carolina and Virginia. Chen’s survey of visitors to the BRP pointed to a very high degree of satisfaction of visitors (100% of residents of

NC counties and 98.74% of all other visitors said that they would visit the parkway again) and that one of the important motivations for visiting the parkway was “to observe the beauty of nature”.

2.3 Landscape History and Theory Foundations: American Landscape Architecture Prior to the BRP

A review of American landscape architecture was initiated. Due to the limitations of time and space, and because this is not a thesis about landscape history but rather about design theory, this review focuses on theoretical issues, and road design.

According to Newton and other American landscape history experts, American design prior to the BRP was divided into roughly three periods: the colonial period (1650-1850) the public parks period (1850-1890) and the country place-city beautiful era (1890-1930). Modernism is considered to have “truly surfaced after World War Two” (1945). [25] However, modernism is included in this overview as modernism was beginning to emerge in America during the 1930’s and was a potential influence upon the BRP design.

2.3.1 The Colonial Era 1650-1850)

There are few extant examples of landscape created during colonial period. Newton claims that most of what is known is provided by “letters, descriptions and early nursery catalogues” [26]. Most of this information is related to plants and not design. While a simple rectangular pattern of beds and paths was prevalent for internal garden structure throughout the colonies, there were regional differences. Southern plantations were larger and more dispersed than New England farms which tended to be compact and situated close to one another and to towns. Newton states that the design of the southern plantations: “(E)ven to the end of the eighteenth century and into the nineteenth, the organising force was usually the strong geometric influence of the English Renaissance rather than the landscape gardening trend that had long since become the fashion in England.” [27] This form relied on perceptible sight lines to tie spaces together to try to form an organised plan. Brown (1995) claims that the adherence to the Renaissance model was not due to “American *retardataire* taste” but because the Virginia plantation owners took the model of the second home villa of the English aristocracy as more appropriate to their needs, than the “large country estate

of the aristocracy” [28]. Jellicoe (1975) identifies Jefferson, (Virginia plantation owner, statesman and third President of the USA) and Frederick Law Olmsted, Sr. as “the two great personalities who stand out for their influence on (American) landscape design” [29]. It follows that their approaches to design might have been adopted by the landscape architects of the BRP.

Jefferson, admired French classicism and actively supported the adoption of L’Enfant’s 1791 plan for Washington, D.C. (See Figure 4) This plan was based on a road system of radiating avenues and strong sight lines between the White House and Capitol. The broad, straight, axial avenues extend out in various directions and intersect in open spaces. A secondary rectangular grid of streets was overlaid between the major avenues. While this is clearly an example of urban street layout, the radiating system with open spaces has been identified as similar to Versailles. [30] Thus, the form of the straight avenue with circular intersections might have been considered as an option for a rural situation, such as the BRP.

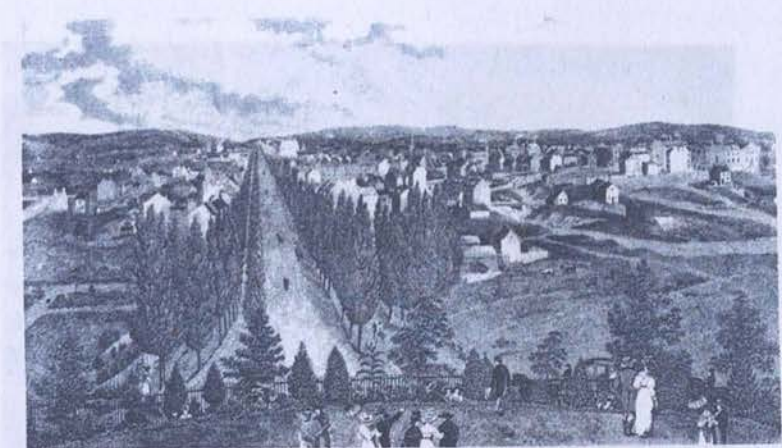


Fig. 39. Washington, early view showing Lombardy poplars on Pennsylvania Avenue (Library of Congress)

Figure 4 - Early view of Pennsylvania Avenue, Washington, DC (Nichols and Griswold, p 70)

Jefferson provided another example of road design with his system of roads for his plantation, Monticello, set in the foothills of the Appalachians in Charlottesville, Virginia. Jefferson visited the English estates of Stowe, Leaslowes and Blenheim, among others in 1786. According to Newton, he then deviated from the English Renaissance model by devising a winding walk bordered by flowers and shrubs, which he called a serpentine walk [31.] Jefferson also laid out a system of four ring roads, or roundabouts, as discrete circles around the summit of the 'little mountain'. These were used for riding and walking and are connected to each to each other by straight paths. (See Figure 5) Unlike the curving ring roads, Monticello's entry drive was straight. Nichols and Griswold (1978) claim that Jefferson's ability to think in three dimensions allowed him to visualize the undulating vertical aspect of the straight road. The steepness of the site resulted in a "constantly changing view caused by the undulating vertical profile, and the house did not come into view until one had reached the top of the hill, almost at the main gate" [32]. Apparently, in Jefferson's view, visual interest and surprise could be successfully wrought with vertical change alone. Horizontal curvature did not need to come into play in Monticello's piedmont situation. Such an approach might have been considered for the design of the BRP as it is located in an area with ample vertical gradient.

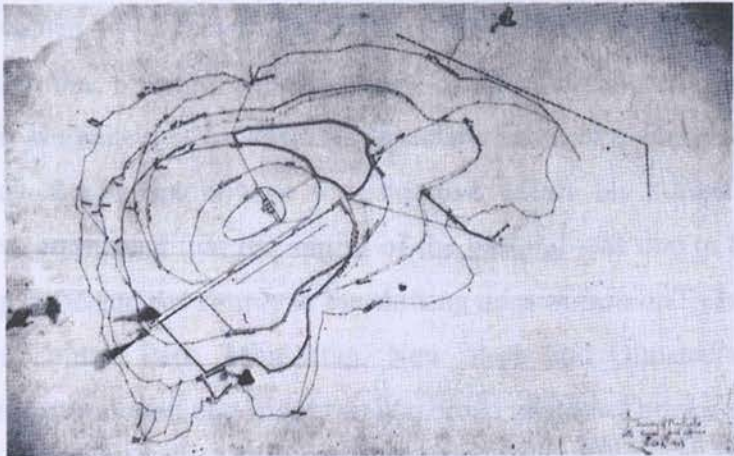


Fig. 51. Monticello, survey of Jefferson showing houses, offices, and four roundabouts, 1803 (Massachusetts Historical Society)

Figure 5 - Jefferson's map showing Monticello's ring roads. (Griswold and Nichols, p103)

2.3.2 The Public Parks Era (1850-1890)

Frederick Law Olmsted and Calvert Vaux designed the first public park in the United States: Central Park, NYC (1856). The firm went on to design Prospect Park, Brooklyn, NY; Chicago South Park, Illinois; Mount Royal Park, Montreal; Franklin Park, Boston; Cherokee Park, Louisville, Ky., among others. Many books and articles have been written about Frederick Law Olmsted and his work. He is credited with having established the profession of landscape architecture in the USA. Howett (1993) states, “(O)lmsted’s acknowledged intellectual and artistic leadership generated design energies and directions that sustained the profession through the opening decades of the new century and not just in the area of urban design and park planning” [33].

Beveridge writes that Olmsted adopted “the intellectual framework (of the English theorists such as Repton) and grafted onto it the landscape qualities and resulting emotions that he found most powerful”[34]. Olmsted toured England in 1850 and wrote a book about his travels. He was most interested in visiting English public parks whose premise and style impressed him very much. He read Gilpin and Price as a youth and according to Beveridge, gave these texts to his apprentices as the foundations for practice. (See Chapter 5 for information on Olmsted’s relation through apprenticeship to the designers of the BRP.) The psychological effect of scenery was valued by Olmsted and in this, “he created a body of theory about landscape design that was so original that few of his contemporaries grasped its full meaning.” [35] He believed that scenery, especially pastoral scenery, (known as “the beautiful” –see Burke below) has a restorative effect on human beings. [35] “(Olmsted) was convinced that the appeal of the pastoral was due to basic elements of the human psyche and not simply to the shifting tides of fashion” [36].

The design of Central Park, Manhattan, New York and Olmsted’s other parks, emphasises the pastoral with curvilinear walks, broad meadows bordered by groves of trees and asymmetrically formed ponds and lakes. (See Figure 6) The circulation system of roads and paths separates cross-town traffic from the interior carriage roads and strolling paths. It was this innovation that set the design apart from other entries and which secured its selection as winner of the design competition for the park. “(T)he users of the park could enjoy the scenery without real or apprehended danger

of collision with those using a different mode of travel.”[37]. Once within the park, people should be able to leave behind the tension associated with the urban realm, and stroll leisurely becoming absorbed in the landscape and psychologically restored. Olmsted believed that “kineasthetic experience of a predominantly natural environment had a profound and wholesome, healing effect upon the human psyche”[38].



Figure 6 - Plan of Central Park’s south end, showing curving roads and paths, asymmetrical meadows and water features. A transverse road appears to bisect the left portion of the site but is sunken below grade to permit leisurely strolling and appreciation of the scenery without intrusion of cross-town traffic. (Beveridge and Rocheleau, p 52)

2.3.3 Country Place/City Beautiful Era (1890-1930)

An alternative influence upon the design of the BRP may have derived from design accomplished during the late nineteenth/early twentieth century, a time when mercentile wealth made it possible for affluent Americans to build rural estates, or as Newton terms them, country places. Of course, there were other influences about at this time. According to Simo (1999) the booming economy and fascination for the automobile during the 1920's and 30's were viewed by some American landscape architects as threats to the natural environment. [39] Simo notes that Jens Jensen, OC Simonds (designer in 1880 of Graceland Cemetery, Chicago) and Arthur Shurtleff had “(a)rtistic aspirations that (were mingled) with an intuitive feeling for what was later known as ecology” [40]. Simonds and Jensen both advocated the use of native plants, Shurtleff expressed a vision related to what he termed the ‘loveliness of the earth’. In a 1930 article in *Landscape Architecture* Shurtleff urged landscape architects to ‘save, protect and create this ‘loveliness.’ which was imperilled by humanity. While Shurtleff did not justify his position with ecological theory, he “was intuitively aware of what was appropriate in design” [41]. Shurtleff saw a ‘compelling force of urgent human need’ to address the environmental destruction and he saw landscape architects as professionals who could address this need. [41]

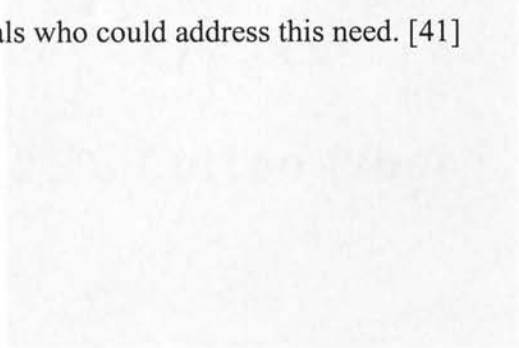


Figure 7 Jens Jensen's design for Ryerson Park in Chicago, 1902-1903
Jens Jensen's use of native plants (Simonds, 1999, p. 12)

According to Simo, and Newton, a gulf existed between Jensen and Shurtleff. Jensen, which Newton attributes to Jensen's introduction of ecological landscape design, use of natural scenery in their design. Jensen, who Shurtleff was not aware of until 1949, 44 However, notes that Jensen's work, while not as radical as the product of the degree to which the profession opened up a whole new world of design, was an advance—a break. And certainly... [42] Jensen's design was Jensen's

2.3.3.1 Prairie Style

A distinct style which evolved during the Country Place era was the Prairie Style. The term was coined and is most associated with the work of Jens Jenson (who collaborated with renowned architect Frank Lloyd Wright on several commissions.) Jenson, a Danish immigrant to the USA (1884) was “one of the most controversial” of the leading landscape architects. Like Olmsted, Jenson was an ardent student of nature from childhood. [42] Moreover, he was an accomplished plantsman and one of the first proponents of the use of native plants. He established himself in Chicago and developed a planting approach that came to be known as the “Prairie Style”, using “indigenous trees, shrubs and wildflowers—in compositions of quiet spaciousness emphasising horizontality and stratification” [42]. Jenson worked *only* with plants, emphasising ecologically based management and “wild-nature” design. (italics mine) (See Figure 7) He reasoned that native plants and the development of a native or regional style were more appropriate for Americans than imports, including formal gardens. [43]



Figure 7 Jens Jenson’s design for Ryerson Residence, Lake Forest, Ill, 1912 demonstrates Jenson’s use of native plants. (Newton, p 437)

According to Simo, and Newton, a gulf existed between Jensen and east coast practitioners which Newton attributes to Jensen’s excoriation of east coast landscape architects’ use of formal geometry in their design, as well as, their use of exotic plants. [43,44] Howett states that Jensen’s isolation within the profession “is another indication of the degree to which the profession operated as a firmly entrenched and conservative academy—a Beaux Arts academy...” [45] Newton claims that Jensen’s

style and approach were extremely well suited for large scale public parks where the results were “magnificent” [44]. Apparently, it is in Jensen’s large public parks, where the native plants, assembled to allow for appreciation of the unique regional character of a site, are best appreciated. It is possible that Jensen’s approach to the use of native plants and ecologically based design influenced the BRP design. Edward Abbuehl, one of the primary BRP landscape architects, was from Kansas and may have been familiar with the Prairie Style through seeing examples of it.

2.3.3.2 Biltmore Estate

A specific design from the Country Place era which may have influenced the BRP was the Biltmore Estate, Asheville, NC. Newton states that American landscape architecture, particularly estate design of this era, shifted from the “soft, naturalesque, amorphousness of Reptonian neutrality’ to imitate the eclectic style popular in domestic architecture. (See discussion of City Beautiful/Beaux Arts below). An example of the new architectonic approach is the Biltmore Estate, designed by Frederick Law Olmsted, Sr. and his sons. The Biltmore is eclectic in that both French classicism and English picturesque are used in the landscape design. The gardens near the house (a French style chateau) extend the axial lines of the house out into terraces, ramps and symmetrical rows of trees. The design deviates from the classical geometry (in the style of Le Notre) as it moves away from the house into rolling, picturesque landscape, the style preferred by Olmsted.

The Biltmore may well have been visited by the BRP landscape architects. It was, and is, a greatly admired landscape, situated just a few miles from the BRP, in the mountains of North Carolina. Olmsted, in fact, wished to educate the public (and other landscape architects) about design through example. “In all his private work Olmsted created examples of good taste that would demonstrate the superiority of his designs to the decorative gardening and ostentatious display that he encounter on so many estates of the rich. Biltmore would be visited by many potential tastemakers; its example would extend far and wide...Olmsted intended to challenge the decorative ‘public garden’ approach and instead proposed to take the natural character of the place and ‘work it up’” [46]

Charles Beveridge, noted landscape historian and Olmsted expert states: “The Biltmore approach road and George W. Vanderbilt’s (the owner) resources offered Olmsted an opportunity to create the most ambitious work of his career in the picturesque style” [47]. The three mile road, designed for horse and carriage, links different landscape experiences—open pastoral valley scenery, views of streams and pools, thick ‘dense, towering walls of foliage’. (See Figure 8)



Figure 8 – Views along the Biltmore approach road, Asheville, NC. The picturesque scenery includes a view of tilled fields above and an enclosed view below. Note in the bottom view, the treatment of the terrain which slopes gently away from the road and is bounded by blooming mountain laurel, which creates an evergreen screen. (Beveridge and Rocheleau, p250 and 229)

According to Beveridge, Olmsted was particularly interested in creating an effect of “richness, delicacy and mystery” [47]. This was to be accomplished by using a wide variety of plants including natives and non-natives. Olmsted was striving for the effect of ‘complexity of light and shadow near the eye’ that was an essential element of his picturesque style. [47] (See Figure 9)

Olmsted also considered the atmosphere of mystery in his design concept for the Biltmore road where he proposed deep shade near the pools where the horses would stop for water with “an opening reaching back for a considerable distance above, with glints of sun-lighted bits of water, with enough low foliage to make it intricate and mysterious, and to excluded the idea of there being anything artificial in what is seen”[47].



Figure 9 – A pool planted with fine textured low growing species. The approach road is seen curving in the distance. Olmsted was striving for an atmosphere of bounty and mystery. (Beveridge and Rocheleau, 226)

Howett (1993) claims that there was “little philosophical or critical discourse within the profession in the early twentieth century at a level comparable to the writings of Olmsted and (his) contemporaries (in the mid nineteenth century)....No such discourse seemed necessary, apparently, during the first three decades of this century...”[45]

2.3.3.3 The City Beautiful

The 1893 World’s Columbian Exposition in Chicago, credited with initiating the City Beautiful movement of the early 1900’s, was an example of formal, neo-classical design. Although Olmsted, Sr. was responsible for the master plan, the architects involved “enforced a Beaux-Arts canon that violated Olmsted’s commitment to urban design that provided ample opportunities for the experience of natural scenery” [48]. The City Beautiful advocated positive urban values but according to Scully (quoted by Howett) designers used neoclassical architecture in a purely visual way, “drained of emotional focus and of meanings other than theatrical ones... (it) became the stock in trade of architectural schools by the end of the century” [49]. Simo (1999) in her book tracing the first hundred years of the American Society of Landscape Architects, cites Caparn’s 1912 defense of naturalism in Central Park, “against the views of neo-classical (Beaux arts inspired) designers who would have preferred something more grand and clearly

structured, reflected the opposition between the ‘formal’ and ‘informal’ design that troubled landscape designers in the early twentieth century. [50]

The advent of the City Beautiful movement at a time when modernism was beginning to surface in European art and architecture is an indication of the conservative tone of most American art. [51]

Simo credits Charles Downing Lay, editor of *Landscape Architecture Magazine* (then *Landscape Architecture Quarterly*), with “getting beyond pictorialism but not as far as the space time concepts of Einstein’s physics or Picasso’s cubism” in an essay called “Space Composition” published in 1918. [52] The essay “emphasised spatial design, as opposed to pictorial design, as a means of comparing vastly different landscapes from different eras, such as the works of Le Notre and the works of FLO, Sr.

Simo points out that in the early 1930’s the economic downturn impacted the philosophical position of the ASLA. In 1930, ASLA president Arthur Shurtleff expressed a vision related to what he termed the ‘loveliness of the earth’. Shurtleff, (later changed to Shurcliff), urged landscape architects to ‘save, protect and create this loveliness.’ which was imperilled by humanity. [53] Shurtleff wrote from a romantic point of view but seems to have understood ecology on an instinctual level.



Figure 9 – A pool planted with fine textured low growing species. The approach road is seen curving in the distance. Olmsted was striving for an atmosphere of bounty and mystery. (Beveridge and Rocheleau, 226)

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2.3.4 Early Modernism (1930's-1945)

According to Walker and Simo, (1993), it wasn't until after the end of World War Two, that the modern movement truly surfaced in American landscape architecture. The authors claim that the modern era spanned from about 1945 to the late 1970's. [25] "Although modern (or 'modernistic') gardens appeared in the 1910's and 1920's in Europe...But in the wider field of landscape architecture, encompassing environmental design at a great range of scale and purpose, the impact of the modern movement was not felt until the 1930's In landscape architecture, this impact was more gradual and often less striking than in other visual and spatial arts yet no less profound"[54].

The younger generation of American landscape architects during the 1930's were intrigued by European modernism and perhaps, impatient with the conservative approach of the elder landscape architects. Fletcher Steele and Garrett Eckbo were among the first to advance advance a modernistic view of landscape architecture. In a 1932 article, Steele "predicted a fusion of those old polar opposites, 'formal' and 'informal' styles. Simo claims that some of Steele's fellow landscape architects were at least intrigued by modernism as evidenced in a 1932 symposium where people like Malcolm H Dill viewed "modern art as is important in its spirit—its insistence on honesty in materials, craft and construction"[55]. (Dill also wrote about road design—see below.)

Eckbo, Kiley and Rose, (1939) are landscape architects widely identified with American modernism. The trio, students at Harvard University Graduate School of Design, wrote of the need for landscape design to adapt its forms, materials and construction techniques to

the changes that had occurred in the fields of science and technology. The authors criticised Beaux Arts forms and patterns as empty and irrelevant to the real needs of people – people “who live and play, rather than stand and look” [56]. “The grand manner of axes, vistas and facades has been found out for what it is—a decorative covering for, but no solution to, the real problem”[56]. Landscape design, the authors argue, must shift its forms to address specific needs. Such needs are described as recreational and utilitarian. Imbert (1993) says that the “Eckbo, Kiley and Rose sought a formal expression in a modernism truly rooted in its time. As students in the late 1930’s, they analysed cubist and constructivist compositions, drew architectural lessons from Walter Gropius, and looked toward Europe for a model of the new garden”[57].

The modern parkway is cited by Eckbo, Kiley and Rose (1939) as one of the only and “best example(s) of new landscape forms evolved to meet a purely contemporary demand”[58]. However, the actual form of the parkway is not discussed or described, only the fact that the needs of the automobile have been “met and mastered, not fled from” and that “archaic design standards fell by the wayside almost unnoticed”[58]. The authors seem to be addressing the suburban parkway systems specifically when they suggest that parkways be judged on unity and efficiency: “The parkway...can either serve as a means of integrating living, working and recreation into an organic whole; or it can be used in an effort to sustain their continued segregation...Only if the parkway reduces the time, money and effort involved in getting from home to work to play, will it justify its original outlay”[59].

The Westchester County, New York system was the best known and most developed parkway system at the time of the article’s 1939 publication (See Figure 10). It had been built to connect New York City to public parks in outlying, predominantly rural Westchester County. One of its purposes was to foster development by providing efficient, modern road transport into and out of the city. Along with an established rail system, the Westchester parkways, (Saw Mill River, Sprain Brook, Hutchison and others), provided multiple options for commuters, as well as a means for urbanites and suburbanites to access Westchester’s parks. Whether or not the parkways resulted in an

“organic whole” is debatable, for now many see the county as overdeveloped. However, the justification for their expenditure has long been recognised on the basis of ease of access to public space by automobile and for the dispersal and rapid movement of commuting traffic.



Figure10 - Westchester, New York – County Parks, Parkways and Reservations indicating the network of parkways leading out of New York City to the parks in northern Westchester County. Date 1932. (Newton, N)

Walker and Simo (1993) state that “(i)n modern landscape architecture, space was rediscovered as the great unifying medium. People, no longer merely spectators, became actors in the modern landscape”[54]. Walker and Simo identify two paths of modernism—“one primarily toward social interests, the other toward artistic interests—have each led to a bridge that conceptually spans the two eras, linking Olmsted’s ideals and aims with those of mid twentieth century landscape architects. The first bridge, represented by the garden city movement, springs from a conviction that also motivated Olmsted: the belief that peoples lives can be enriched, gently modelled and directed toward socially progressive aims by certain built environments. The second bridge, represented by the work of Burle marx, Barragan and Noguchi, springs from another cherished belief of Olmsted: that the design of landscape is a noble art form. Neither bridge is exclusively social or artistic in its essential purposes; each represents a particular set of priorities or balance of emphasis” [60]. Johnson (1999) points out that modernism was rooted in extraordinary optimism, hard work and the sheer joy of egalitarian dreams...” [61] According to Treib, (1993) social ideals became one of the underlying axioms of modern landscape architecture.

2.3.5 Summary of Background of American Landscape Architecture

A review of American landscape architecture indicated the important role of Frederick Law Olmsted in the development of American landscape architecture. Beginning with the design of America’s first public park, (Central Park, New York c.1856-72), Olmsted and his partners “designed more than 6,000 commissions throughout the United States, of which fully half were carried out on the ground. [62] Olmsted influenced the profession through his built work (in the picturesque style), his writings and through mentorship of junior landscape architects. He is considered the founder of the profession of landscape architecture in the United States and was a founding member of the American Society of Landscape Architects. Olmsted adopted the English picturesque as a favoured style and approach and identified Repton and Price as influential to his thinking. [6, 8, 34] The picturesque style has remained popular in the USA from the time it was introduced in the mid-1800’s until today. [8] Olmsted’s final project, Biltmore Estate, located near the BRP, includes an approach road which emphasises qualities of “bounteousness” and

“mystery” [63]. This project, as well as others, may have been visited by the BRP landscape architects as an example of road design. Other possible design approaches, such as the radiating road patterns of Washington DC and the straight, vertically undulating road of Jefferson’s plantation Monticello, were investigated. The Prairie School style of using native plants in informal groupings emerged as a possible influence upon the BRP’s planting design. Closely following the Prairie School philosophy was a nascent theory regarding ecological design promulgated by some of the leading landscape architects of the 1920’s and 30’s. Finally, modernism, which was just beginning to surface in the USA in the 1930’s, shifted the emphasis of viewing the landscape to being “in” the landscape and emphasised the social purpose of design.

In terms of form and theory, the picturesque appears to have been the most visible influence upon the BRP design. The asymmetrical, picturesque landscape forms used by Olmsted and his successors were observed to be very similar to the forms found in the design of the BRP, (See Chapter 5, Background of the BRP) Therefore further investigation into the background and origins of the picturesque theory is a necessary “next step”. According to Jellicoe, the English landscape style associated with Capability Brown and Humphrey Repton “has survived, flourished and become universal” [64]. If one accepts, as Newton, Jellicoe, Gothein and other experts do, that America was profoundly influenced by the English landscape school, then the question arises “What is the foundation of theory for the English picturesque?” “Who and what influenced Repton, Brown and Price?” These questions led to an investigation of the origins and inspirations of English picturesque theory.

2.3.6 Eighteenth Century English Aesthetic Theory

William Hogarth and Edmund Burke are identified by Gotthein (1928) as the first to write treatises outlining principles and describing the physical form that best expresses the English landscape school. [65] This school was an outgrowth of almost a century of inquiry and debate.

England in the eighteenth century was the centre of aesthetic dialogue—much of it related to landscape. William Hogarth, a painter and engraver, contributed to the dialogue with the publication of a treatise on aesthetic theory Analysis of Beauty (1753) Paulson in his Introduction to the Analysis of Beauty says “ (Its) importance has been obscured largely because its argument lies outside the main tradition of writing on art, whether of painter’s manuals or aesthetic treatises”[66]. Hogarth studiously observed form—the form of the human body, sculpture, natural and manmade objects and made this the basis of his theory. His book is written for the painter and for the layperson. Although landscape is used occasionally to explain a principle, it is not the main focus of the work. Burke’s Enquiry into the Origin of our Ideas of the Sublime and the Beautiful (1757) has a great deal to do with landscape and the emotional affect natural landscapes have upon people.

This review will focus on three main themes of Hogarth and Burke’s theories. The first is the underlying concept of structured by and reliant Burke the fundamental be associated with themes are principles are crucial to beauty: the principle of motion.



beauty. For Hogarth, beauty is upon the Serpentine Line, for concept of beauty is that it must emotion. The second and third which Hogarth and Burke agree principle of variety; and the

Figure 11 – Gulielimus Hogarth (1749) According to Paulson, this was the painting referred to by Hogarth in The Analysis of Beauty

Repton and Price's work followed that of Hogarth and Burke. Both considered the earlier theories but focused on manmade landscape. Repton, in particular, is an historical bridge between the design of the BRP and Hogarth and Burke's theories. Olmsted identified both Repton's and Price's publications as having influenced his design approach.

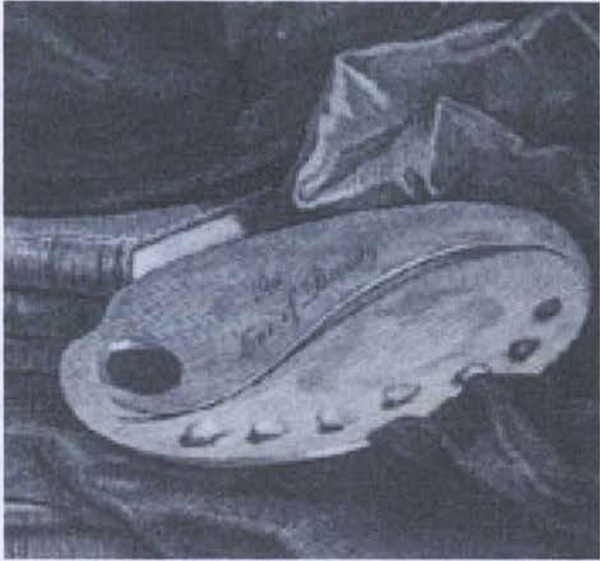


Figure 12 – Close up of painter's palette from Hogarth's self portrait showing the Line of Beauty. Note that the line is sculptural, not flat.

2.3.6.1 William Hogarth's *Analysis of Beauty*

Hogarth's Concept of The Serpentine Line of Grace

Hogarth (Figure 11) wanted to contribute to the intellectual dialogue of the time amongst artists and critics, such as Addison and the Earl of Shaftesbury by writing a treatise on beauty. [67] He wished to clarify the discussion which he claims had become bewildering—"...(The writers) are continually discoursing of effects instead of developing causes"[68]. He was interested in getting beyond "fashion" to the substance of art.

Hogarth had previously set forth the serpentine line in a mysterious manner in the publication of his engraved works in 1745. The frontispiece was a self-portrait with the serpentine line shown on the painter's palette with the words under it: The Line of Beauty. (Figure 12) Apparently this picture drew many questions from his fellow painters. Hogarth claims that this began a controversy as to whether there could be a rule, or a single line, governing beauty. [69]

In the preface of The Analysis of Beauty, Hogarth describes the *Line of Beauty* as a feature of the great works of art and traces it to the Egyptians and Greeks. A treatise by Lomazzo is cited in which no lesser artist than Michael Angelo is quoted “...*Michael Angelo* upon a time gave this observation to the Painter *Marcus de Scienna* his scholler; that he should alwaies make a form *Pyramidall, Serpentlike, and multiplied by one two and three. ...*” [70]. A point made by Lomazzo and later followed up by Hogarth is that a serpentlike form connotes movement. “..the greatest grace and life that a picture can have, is that it expresse *Motion* which the Painters call the *spirite* of a picture...”[71](*italics Hogarth's*) (Figure 13)



Figure 13 – Hogarth’s illustration of torso by Michael Angelo showing the lively form imbued by the serpentine line

Hogarth draws on numerous examples to explain the concept of the serpentine line: classical paintings and sculpture, natural forms, furniture, the human body and dance patterns. His argument is greatly enhanced by the hundreds of illustrations he has selected and included as representations of the serpentine line. Hogarth's argument guides the reader from the beginning concept of the simple line as he defines four classes of objects based on the different types and combinations of lines:

1. objects composed of only straight and circular lines (cubes, spheres, cylinders and cones) A cone is illustrated in Figure 16, #56.
2. objects composed of straight and circular lines, and additional partly straight and circular lines (capitals of columns and vases)
3. objects composed of all the former lines and the waving line—which Hogarth calls *the line of beauty* (flowers, cornice mouldings) (*italics mine*)
4. objects composed of all the former lines together with the serpentine line “which hath the power of super-adding grace to beauty” [72]. (the human form)

It is easy to follow Hogarth's argument as he moves from the simple line which is readily understandable to the more complex *line of grace*. (*italics mine*) Further, Hogarth illustrates the evolution of a static, straight line of two dimensions as it changes into the

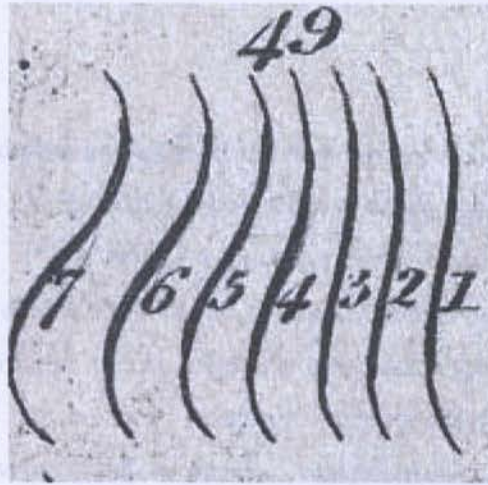


Figure 14 - Hogarth's illustration of waving Serpentine Lines expressed two dimensionally. Number 4 is considered to be the true *Line of Beauty* as it is neither too robust nor too impoverished a form.

waving line of beauty (still two dimensional) (Figure 14) to the highest level of beauty, the line of grace, a three dimensional form. (*italics mine*) (Figure 15) All sorts of waving lines are ornamental but according to Hogarth, there is only one line of beauty. (*italics mine*) He illustrates the idea with a range of seven lines. Some are too straight and some bulge too much, the true line of beauty is somewhere between the two ends of the spectrum. (*italics mine*) (Figure 14)

The line of beauty is of a more two dimensional configuration than the line of grace. At least Hogarth illustrates it two dimensionally. The line of grace is represented three dimensionally by wrapping it around a three dimensional object.

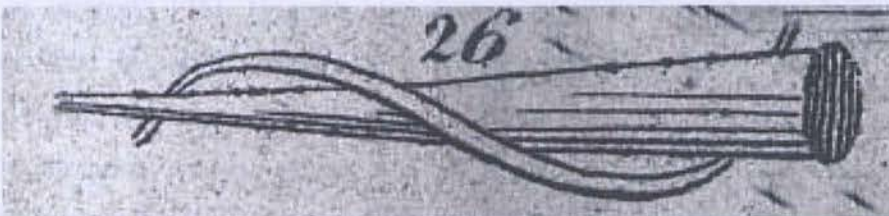


Figure 15 – The line of grace is “represented by a fine wire, properly twisted around the elegant and varied figure of the cone”[73].

Hogarth takes pains to define and explain the three dimensional, multi faceted attraction of the *line of grace*. An example of a sheep's horn (cornucopia) is used to describe it to advantage (Figure 16): "The whole horn acquires a beauty by its being...bent two different ways...and when the horn is split, the inner, as well as the outward surface of its shell like form is exposed, the eye is peculiarly entertained and relieved in the pursuit of these serpentine lines, as in their twistings their concavities and convexities are alternately offer'd to view. Hollow forms...composed of such lines are extremely beautiful and pleasing to the eye, in may cases more so than solid bodies" [74].

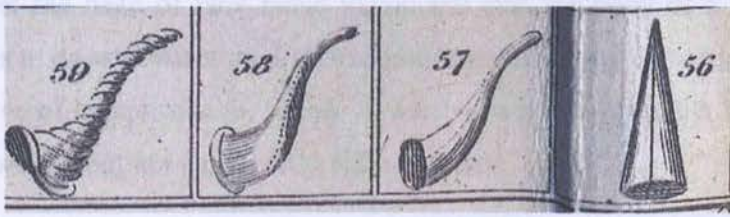


Figure 16 – The cornucopia, #59, is considered by Hogarth to be more beautiful than the other horns for its variety of lines which twist and wave around its surface.

Quennell (1955) says that Hogarth's advocacy of the serpentine line as the basis of beauty "symbolized not so much a hard-and-fast system as the general tendency of the artist's mind--his delight in movement and variety, and his preference for the type of composition that keeps the spectator's eye wandering to and fro between many different centres of interest" [75]. Hogarth associates a pleasant mental stimulation with the serpentine line. Beautiful scenes, composed of serpentine lines, such as rivers and winding walks, lead the eye on a "wanton chase". According to Hogarth, this is an enjoyable sensation, similar to the pleasant mental occupation of solving a riddle or following the "well connected thread of a play." There is mystery, mental intrigue and engagement in these types of scenes. "In fact the pleasure that the serpentine line gives the mind, intitles it to the name of beautiful" [76].

Hogarth's Principle of Variety

While advocating the serpentine line as fundamental to beauty, Hogarth indicates that a work of art is complex and there are several other principles which must come into play...."FITNESS, VARIETY, UNIFORMITY, SIMPLICITY, INTRICACY and QUANTITY..."(Cap's Hogarth's) are set forth as essential principles.

The two important principles are fitness and variety. Fitness has to do with the integrity of design, where no part distracts from the harmony of the whole. In fact, each part should support and contribute actively to the legibility of the overall design. As an example of this, Hogarth compares the physical characteristics of sleek race horses to massive war horses as demonstrative of each animal's purpose. Their parts are not interchangeable: the head of race horse would not suit the body of a war horse [77]. Fitness also has to do with function. Form should express utility. A race horse is light and sleek, expressive of its aptitude for speed. A war horse is heavy, stolid, large, capable of bearing much weight but not particularly agile or quick.

Hogarth states that the *most* important tenet is variety. (*italics mine*) Excepting fitness, all of the other principles can be met under the heading of variety. The reader is advised concisely: "In a word, it may be said, the art of composing well is the art of varying well." [78] Hogarth does not intend that the artist strive for variety as an end in itself but must learn to vary *well*. (*italics mine*). Variable parts should fit the whole in terms of scale and propriety. Hogarth claims that variety is the antidote to boredom and that "all the senses delight in it, and equally are averse to sameness"[79]. He cautions that too much variety is not desirable because the eye becomes "glutted" with it and recommends some plain space as a contrast to variety. Most of all, he recommends "Composed variety, for variety uncomposed, and without design, is confusion and deformity" [80].

Hogarth was concerned with what and how people see. He was interested in perception of colour, proportion, form and breadth. Referring to the mixing of colours from the opposite ends of the colour spectrum, he states "(A) most pleasing green is found which

colour nature chose for the vestment of the earth, and with the beauty of which the eye is never tired" [81].

Using an illustration in which imaginary rays from the eye are projected toward a large field of vision, he made an important point about the ability to see broad views. He notes humans can focus narrowly on only one specific object at a time. A line of letters is used as an example. (Figure 17) If one concentrates closely on the one letter "A", the adjacent letters "grow more imperfect"—that is they become blurred. However, if all of the letters in the line are taken in at one view, the eye must quickly scan them. Hogarth notes "the amazing ease and swiftness with which it performs this task, enables us to see considerable spaces with sufficient satisfaction at one sudden view [82].

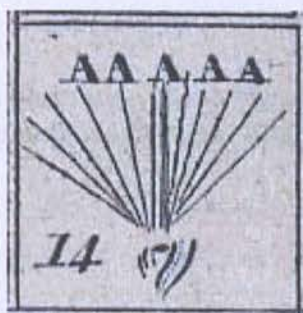


Figure 17- Hogarth's illustration of the line of letters shows imaginary rays emanating from the human eye

Hogarth's Principle of Motion

According to Hogarth, the serpentine line is at its best when it is activated by motion. The eye is captivated by both the line and movement expressed by it. Hogarth asks the reader to envision movement as both a forward movement and up and down movement. The motions of a trotting horse and ship rocking on the waves are used to illustrate that such movement is beautiful to watch and pleasant to experience [83].

The minuet is viewed by Hogarth as a rich artistic expression because it contains a composed variety of many serpentine lines. (Figure 18) The vertical rising and lowering of the body plays a role in the movement, as well as the pattern of serpentine lines of the dance movements [84]. The gentle rising and falling of the dancer's bodies as they move in the serpentine pattern of the dance is most pleasing.

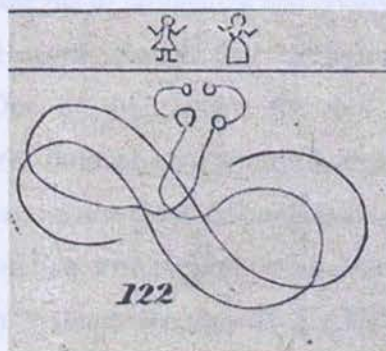


Figure 18 -Hogarth's Illustration of the "figure of the minuet path on the dance floor, composed of serpentine lines".

2.3.6.2 Edmund Burke's *A Philosophical Enquiry into the Origin of our Ideas of the Sublime and Beautiful*

Burke's Concept of Emotion inspired by Beauty

Edmund Burke, published *A Philosophical Enquiry into the Origin of our Ideas of the Sublime and Beautiful* in 1757, just on the heels of Hogarth's *Analysis of Beauty*. Burke's work, like Hogarth's, is an attempt to respond to aesthetic debate by establishing principles of design. The two works agreed on the importance of variety, gracefulness and smoothness in beautiful works of art. Yet while Burke found the 'varied' line beautiful he did not believe that all beauty could be reduced to a single line of grace or beauty [85]. He was reluctant to propose an overarching rationale for successful works of art. Instead Burke sought to establish a basis for judgement, a standard which laid out principles of taste which could be referred to in cases of dispute. He said that people take

in information about the external world through three main routes: their senses, their imagination, and their judgement [86].

Burke defines all the things that beauty is not, often using examples from the natural world to illustrate how human attempts to rationalize and codify beauty are not supported by complex Nature. Burke, like Hogarth, thought that that beauty is not achieved through strictly mathematical means. One of the reasons for this is that he believes that mathematical judgement is overly rational and removed, that it is overly perfect and therefore does not engage the imagination. (Mathematicians might disagree!) Responding to what he considered to be over-reliance on proportioning systems as a means of judging beauty, Burke claims that such systems are flawed for Nature is not proportioned. Flowers are used as an example, for there is “nothing so beautiful...(but) what proportion do we discover between the stalks and leaves of flowers, or between the leaves and the pistils? How does the slender stalk of the rose agree with the bulky head under which it bends”[87]? Further Burke rejects fitness as being fundamental to beauty in the natural world. The most useful parts of animals, for example the trunk of the elephant, cannot be considered beautiful. He cites human organs, such as the liver and stomach as very “well adapted to their purposes but...far from having any beauty”[88]. Burke does accept, however, the roles of fitness and proportion in works of art which produce “the acquiescence of understanding but not love”. In other words, fitness and proportion are necessary to works of art but not enough. Burke points out that a bare room of excellent proportion inspires “cold approbation”. When the same room is embellished with festoons, mouldings and furniture, “it will please much more” [89].

Burke's concept of emotion related to beauty

Burke claims that the simplest emotion is curiosity. Curiosity leads the mind from one thing to another in a kind of restless chase. He believes that curiosity or novelty “blends itself more or less with all our passions” [90]. Other emotions are described and associated with various types of scenery and works of art.

He claims that beauty arouses a feeling of love. “By beauty I mean that quality, or those qualities in bodies, by which they cause love, or some passion similar to it...”[91] Love triggered by beauty is uncontrollable and irrational. “It demands no assistance from our

reasoning; even the will is unconcerned”[92]. Burke claims that beauty is perceived immediately on an emotional level and requires no intellectual reasoning. Analogous to Hogarth’s serpentine line of beauty, Burke compares the beauty of music to the “winding surface, the unbroken continuance, the easy gradation of the beautiful in other things [93]. As in the visual and tactile expressions of beauty, variety in music must be present but smoothly transitioned. Burke claims that abrupt transitions in music or any other art form do not excite “that sinking, that melting, that languor, which is the characteristical effect of the beautiful, as regards every sense”[89].

Burke contrasts the love inspired by beauty with the pain or terror associated with the dark, gloomy, massive sublime [94]. He also notes that astonishment is associated with the sublime in that “the mind is so entirely filled with the object, that it cannot entertain any other” [95].

JT Boulton criticises Burke of naïve over-generalization when Burke attempts to explain the cause of beauty by using the “somewhat ludicrous description of the man under the influence of love, he establishes the general law ‘that beauty acts by relaxing the solids of the whole system’”[96]. Clumsy analogy aside, Burke made an important connection between an emotional state of relaxation caused by beauty, possibly affecting human receptivity to beauty.

Burke’s concept of variety

Variety is required to keep the sense of curiosity engaged. Variety is seen in the lines of beautiful objects which are constantly changing their direction. Lines must be constantly varied, or attention will dissipate. However, according to Burke, not just any variety will contribute to a work of beauty. Burke claims to differ with Hogarth on the *manner* of variation. (*italics* Burkes) He claims that Hogarth finds beauty in angular figures while: “I do not find any natural object which is angular, and at the same time beautiful“ [97] Variety of line is important but it must have smooth variation, such as “that area of a beautiful woman, (w)here she is most beautiful, about the neck and breasts; the smoothness; the softness; the easy and insensible swell; the variety of the surface...” [93]. For Burke, smoothness plays a key role in both variety and beauty.

Burke's concept of motion

Burke connects motion to emotion and perception. An “agreeable relaxation” is associated with beauty. Burke’s argued that smooth, gentle fluctuating motion relaxes people and makes them predisposed to find their surroundings beautiful. He explains that gentle, up and down motion, such as when a child is rocked to sleep is the most relaxing of all.

“(T)here is a species of motion which relaxes more than rest; a gentle oscillatory motion, a rising and falling....Most people must have observed the sort of sense they have had on being swiftly drawn in an easy coach on a smooth turf, with gradual ascents and declivities. This will give a better idea of the beautiful and point out is probable cause better, than almost anything else. On the contrary, when one is hurried over a rough, rocky, broken road, the pain felt by these sudden inequalities shows why similar sights, feelings and sounds are so contrary to beauty [98].

The idea that different types of motion will affect one’s perception of their surroundings is important to this thesis.

2.3.6.3 Uvedale Price

Price [99] followed up on Burke’s essay by developing an argument for the middle ground, the picturesque. Price goes over much of the same ground as Hogarth and Burke, and even uses the same terms, such as, variety and intricacy. He uses Capability Brown’s work as critical reference and refers to it as monotonous, naked, devoid of intricacy and variety. Price contends that the study of painting is essential to creating successful landscape design:

”The use, therefore, of studying pictures, is not merely to make us acquainted with the combinations and effects that are contained in them, but to guide us...in our search for the numberless and untouched varieties and beauties of nature; for as he who studies art only will have a confined taste, so he who looks at nature only, will have a vague and unsettled one...[100]

To make nature into a work of art, one must study painting. The compositional qualities, aspects of mood, hues, position, and structure are all to be found in great paintings. Like Hogarth, Price refers to Michael Angelo (among other classical painters), as an artist worth studying. "These great artists... considered pictures and nature as throwing a reciprocal light on each other..."[101] He goes so far as to say that paintings are the *only* standards of theory available to landscape improvers (*italics mine*). "...nor are we to consider even those (paintings), of the highest class as absolute and infallible standards, but as the best and the only standards we have, as compositions, which like those of the great classical authors, have been consecrated by long uninterrupted admiration, and which therefore have similar claim to influence our judgment...These are the reasons for studying *copies* of nature, though the *original* is before us [102]. Price's criticism of Capability Brown's landscape designs seems mainly to do with the lack of intricacy and variety, rather than their serpentine form, although Price does feel that the form may be too precise, too predictable. Hogarth was at pains to point out that the serpentine line *alone* was not enough. Variety, a vital constituent, must be added to it. Thus Hogarth might have agreed with some of Price's observations:

"In the turns of a beautiful river, (here Price refers to a natural river) the lines are so varied with projects, coves, and inlets; with smooth and broken ground; with some parts open, and with others fringed and overhung with trees and bushes, with peeping rocks, large mossy stones, and all their soft and brilliant reflections, that the eye lingers upon them: the two banks seem as it were to protract their meeting, and to form their junction insensibly, they so blend and unite with each other. In Mr. Brown's naked canals, nothing detains the eye a moment; and the two bare sharp extremities appear to cut into each other. If in such productions a near approach to mathematical exactness were a merit instead of a defect, the sweeps of Mr. Brown's water would be admirable; for many of them seem not to have been formed by degrees with the spade, but scooped out a once by an immense iron crescent..."[103]

2.3.6.4 Humphry Repton

Of the theorists included here, Repton is most directly linked to American landscape architecture. Frederick Law Olmsted, the “father” of American landscape architecture, is said by John Nolan to be “the American successor of Humphry Repton” [104].

In his book, The Art of Landscape Gardening (first published 1795) Repton refers to painters repeatedly, marking the similarities and contrasts between the painter’s approach and that of the landscape ‘improver’. The theme surfaces that painting is the theoretical basis for landscape architecture, and that landscape improvers must look to paintings for direction on how to design composed landscapes. Repton seems to have distilled the earlier theory of Price and Burke into practical, useful advice. He identified principles of landscape gardening, including the tenets that a design should be natural, that is, work to enhance “natural beauties” and “should give the appearance of extent and freedom, by carefully disguising or hiding the boundary.” [105].

Repton described the foreground, middle ground and background of paintings as within control of the painter. He identifies three similar distances which the landscape improver should be concerned with: “The first includes that part of the scene which is in his power to improve; the second, that which is not in his power to prevent being injured; and the third, that which is not in the power of himself, or any other, either to injure or improve” [106]. He intimates that although the designer may not have absolute control over the distant scenery he can obscure or highlight its attributes by his treatment of the other distances and of the boundary line. Repton considered scale and position crucial to perception. The important unit of measure, as indicated in his illustration (Figure 19) by two people holding a surveying rod (A in illustration), is 5 feet – eye level of the adult human.

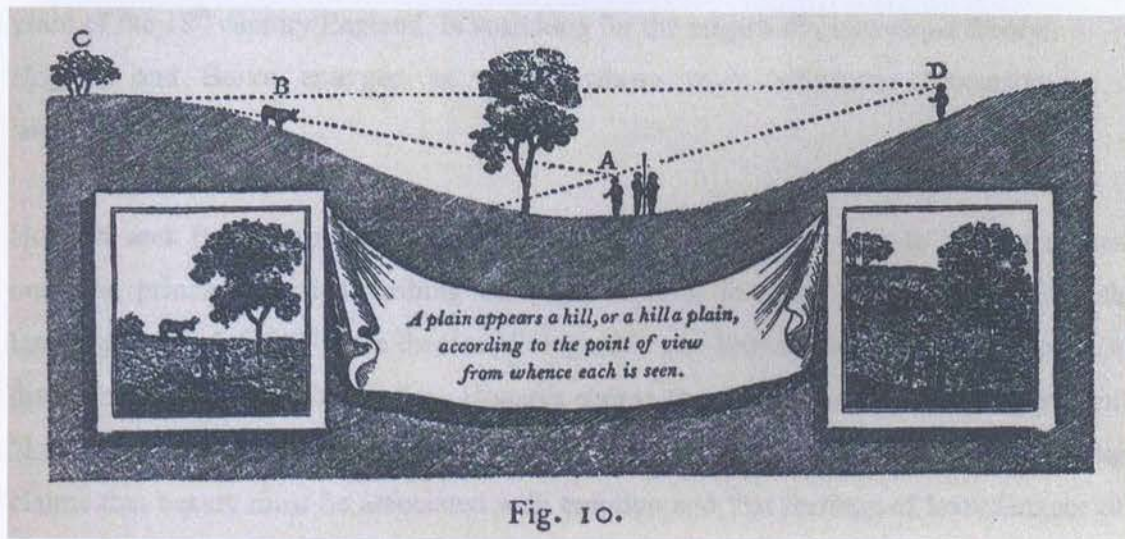


Figure 19 - Illustration from The Theory and Practice of Landscape Gardening, Humphrey Repton, 1803

Ward Thompson [107] makes a connection between English Picturesque design and American public park design. She writes that in England, naturalistic estate landscapes were the prototype of public park design. “(T)he naturalistic landscapes of Brown, Repton and the Picturesque Movement... (were seen) as much more ‘natural’ than they really were”[108]. She notes that the design vocabulary of the English public park was transferred to America where Olmsted and Vaux’s Prospect Park bears a remarkable resemblance to Birkenhead Park, Liverpool.

2.3.7 Summary of Eighteenth Century English Aesthetic Theory

Repton and Price’s work is linked through Frederick Law Olmsted to American landscape architectural theory. Repton and Price refer to painting as the theoretical basis for landscape architecture. Price was critical of Capability Brown’s work as overly predictable due to its employment of the serpentine line without concern for variety. Repton, who is most closely identified with Olmsted, advocating working up the “natural beauties” of a site. He claimed that the landscape design ought to blend in with its rural context and should give a sense of extensiveness to a private property “by carefully disguising or hiding the boundary.” [105]. Repton and Price were continuing an investigation of landscape theory that was initiated in the early

years of the 18th century England. In searching for the origins of picturesque theory, Hogarth and Burke emerged as writers whose work influenced successive landscape designers.

Hogarth and Burke are identified by Gotthein (1928) as the first to write treatises outlining principles and describing the physical form that best expresses the English landscape school. [109] Three themes of Hogarth's and Burkes theories were explored in detail: beauty, variety and motion. Hogarth claims that beauty resides in the serpentine "Line of Grace", a fundamental structuring agent of successful compositions. Burke claims that beauty must be associated with emotion and that feelings of love, languor or relaxation are associated with beauty. Both theorists claim that variety is necessary to works of art, as an antidote to boredom, to keep the mind engaged. Burke claims that smooth variation is necessary. Motion is identified by both theorists as crucial to beauty. Hogarth states that the serpentine line implies dynamic motion and that it is at its best when activated as in dance. Burke describes smooth, gentle oscillating motion as "more restful than rest" and having a positive influence on perception of beauty.

2.4 Early Road Design Literature By and For Landscape Architects

Articles on landscape architectural involvement with road design were published in Landscape Architecture Magazine (the primary professional journal for American landscape architects) from 1910 on. The number of articles grew in the 1920's, 30's and early 40's as parkways were developed then dwindled after World War II, along with the involvement of the profession in road design. Every issue of Landscape Architecture Magazine that had to do with roads, streets, parkways or highways was reviewed.

2.4.1 Road Purposes, Alignment and Corridor Considerations

In the first issue of Landscape Architecture Magazine, Frederick Law Olmsted, Jr. [110] discussed different approaches to intersections. He argues that four way intersections are preferable to gyratory systems (traffic circles) for safety reasons.

Eliot, 2nd [111], a successor to Olmsted, Sr., writes about the changes in park roads wrought by the automobile and makes suggestions related to accommodation of the

automotive vehicles in public parks. He decries the alteration of park roads which were designed for horse and carriages and thus afforded “intimate enjoyment of scenery”. Eliot compares the new mode of experiencing the landscape with film, a medium where “the rapidity of the events pictured has made necessary gross exaggeration of details, so the speed of the automobile now requires a coarse, broad treatment of scenery”[112].

One of Eliot’s principal concerns has to do with alignment. He argues that the requirements of the motor car would reduce horizontal curves and vertical gradient - elements which allowed horse and carriage roads to conform to the topography and “so be less conspicuous in the landscape.” Eliot correctly identifies the difficulties of reducing the prominence of the motor road: “The requirements of a good automobile road - long radius curves and easy grades - mean long construction, and involve great difficulty in subordinating these man-made features to the natural or naturalistic”[113].

Eliot recommends that automobiles be allowed in informal city parks only if they do not detract from the quiet natural atmosphere and the enjoyment of horsemen and pedestrians. Eliot’s quote of Frederick Law Olmsted, Sr., in stating that the purpose of park roads is

‘to provide for a constant mild enjoyment of simply pleasing rural scenery while in easy movement’, indicates the importance of kinaesthetics to the scenic appreciation [114].

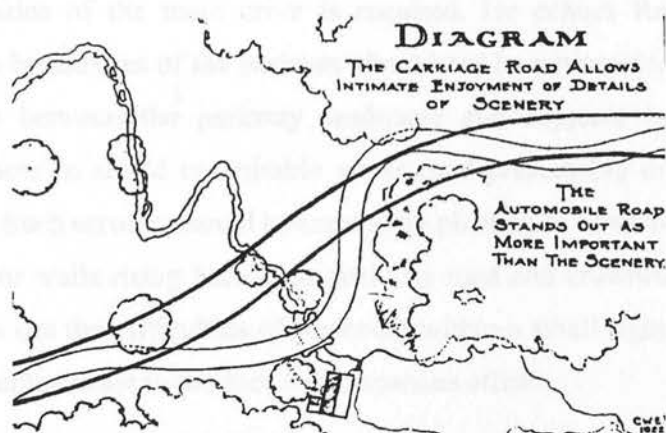


Figure 20 – Eliot’s illustration of the straighter curves and broader road needed for automobiles. The Influence of the Automobile on the Design of Park Roads, 1922 n37

Walking or riding in horse drawn carriages would create this easy movement allow for slower absorption of the scenery. Motor roads would require more simplicity and breadth of scenery. (Figure 20)

John Charles Olmsted [115] identifies two types of parkways: formal boulevards and informal parkways. He focuses on the mixed transportation opportunities and possibilities of formal boulevards. Frederick Law Olmsted, Jr. [116] gives further consideration to the types of parkways and defines four different classifications:

1. an elongated park connecting two broader parks
2. an ornamental street whose purpose is to give value to abutting property
3. an urban thoroughfare or boulevard whose purpose is to enable public travel from one part of its course to another, (as in the boulevards of Washington, D.C.)
4. an intermediate parkway between the elongated park and urban boulevard, such as the Riverway in the Boston Park System

Olmsted writes from practical experience having learned to “distrust sweeping generalizations on this subject and mechanically standardized practices”[117]. Olmsted’s comments regarding the first type of parkway are most relevant to the BRP inquiry. He points out that the purpose of the parkway type is to make people feel that they are continuously within a park. To ensure this feeling, Olmsted argues that considerable width on both sides of the main drive is required. He echoes Repton [105] in his argument that the boundaries of the parkway should not be noticeable. There ought to be no distinct edge between the parkway landscape and adjacent landscape. Olmsted recommends screens to shield undesirable views (and presumably direct vision toward desirable views). Such screens should be created by planting to obscure the boundaries or created by cliffs or walls rising beside the parkway road and crowned by a few trees or bushes. He points out the difficulties of screening within a small right of way (100 ft. or less), where the screen is apt to produce a monotonous effect.

Clarke [118] gives an overview of one of the first parkways to make amplified use of the spiral curve (for a detailed discussion of the spiral curve in road design, see Section

4.5.5). The Mount Vernon Memorial Highway, connecting George Washington's Virginia home to Washington, D.C., was conceived in 1886 and funded in 1928. After considering two location options, it was decided to route the 15 mile parkway along the Potomac River. Clarke and engineer Jay Downer were invited by the Bureau of Public Roads, (BPR) to consult on the project. They considered the location and aesthetic aspects of the parkway prior to its engineering. The BPR then hired landscape architect Wilbur Simonson to help develop in-house plans. Simonson, who had worked with Clarke in the Westchester, NY County Park System, later worked on the design of George Washington Memorial Parkway. Clarke credits Simonson for his ability as a parkway designer. Clarke emphasises the Mt. Vernon relationship with context in his explanation of design motives: "restraint, dignity, charm and restfulness to match the calm beauty of the countryside along the Potomac" [119].

Clarke also remarks on the graceful alignment of the Mt. Vernon Memorial Parkway and the fact that all of the curves were spiralled. The curves, he notes, bring the parkway road into a harmonious relationship with its context as they "create the effect of following the topography of the country" [120]. Eliot [121] describes the landmarks of the corridor of the George Washington Memorial Parkway - an assemblage of historical monuments, scenic views and recreational areas. In his argument for more funding for the parkway project, he says that no other area in the USA has so many historical monuments in so small a district and that the parkway will make these available to the tourist [122].

Simonson [123, 124,125] wrote several articles on road design from the perspective of an accomplished parkway designer, having designed the Mount Vernon and George Washington Memorial Parkways. He explains the essentials of road design from both a pragmatic and aesthetic perspective, noting that the three basic elements of road design are: the driver, the vehicle and the road upon which they travel. He further divides the road itself into three parts: the roadbed, the roadside and the adjacent land. Simonson seeks to make connections between the three domains of the road and stresses that the problem of highway (vehicular design) is (mutually) related to landscape design. He notes that a 1934 federal mandate on roadside improvement encouraged engineers and landscape architects to think beyond the right of way to consider adjacent lands.

Simonson calls this approach to road design “an ever widening concept...starting from the centre line of the roadbed and spreading continually outward over the fence lines to the adjacent lands”[123]. He argues that the three parts - roadbed, road side and adjacent landscape - need to be brought into better balance to create a unified whole. Although the specifics of the article pertain to urban highway development, the notion of three unified parts is also applicable to parkways. In another article Simonson elaborates: “The fundamental purpose of roadside planting operations should be to make the highway strip a mere foreground, or screen against what lies beyond” [123]. (Figure 22) He advocates seizing the views beyond the road because he considers them crucial to a positive visual experience while driving. Connolly (1967), would agree with the distant or long view’s importance and justifies this through scientific and optical evidence (See below).

Nichols [126] writes that the expanding highway network of America had been built so rapidly that aesthetics were overlooked. He advocates purchasing additional right of way areas for parking, turnouts and overlooks so that tourists may rest and enjoy the scenery “with a full degree of safety” [127]. Like Abbott and others, he advocates a larger purpose for highways which would include social and recreational needs, as well as, utilitarian needs. In order to accomplish the broader goals, he argues that landscape architects and engineers need to cooperate at the outset of a project, particularly in the early reconnaissance phase.

Abbott [128] describes the process of creating public parks and parkways, stressing the collaborative relationship between engineers and landscape architects. He could be speaking about the BRP when he points out that “the work in the state parks and the national parks is equally creative even where the problem is to avoid creating, or to create only with the greatest restraint and with fine feeling for the natural surroundings or respect for true history”[129]. Further pertaining to the BRP, Abbott says that the landscape architect must think broadly. “The part of the landscape architect in any field...is to approach design with a breadth of view; out of his training to bring order and beauty (perhaps they are the same); and to bring an attitude of mind not circumscribed in any way. Where landscape design begins or ends, or what it rightly involves, is no fixed

limit any more than an educated person fixes a limit for cultivation of his knowledge” [129].

In another article, Abbott [130] suggests that the American countryside is reflection of national culture and history. He was concerned about the perception of the countryside by motorists and had high ideals for the potentialities of auto touring: “Only as we save some of the beauty of the countryside and some of the homespun folklore and the rural arts as part of our culture will this favourite American pastime of (automobile) touring be the salutary recreation that it might” [131].

2.4.2 Planting Design

The use of native plants for roadside planting was advocated in virtually all of the professional articles. Waugh [132] and Dill [133] were early proponents of this approach. Waugh was not a purist because he observed invasive exotics already in existence along roadsides. He suggests that designers go into the field to look at the soil, moisture and light conditions and make note of the local plant species. Dill considers it “a mistake to use exotics or anything that is not indigenous to the general region and to the particular type of topography at hand” [134]. He believes that native plants provide an important means of retaining individual regional character and that they will blend with the local landscape. He views the road as an intrusion and native plants as a means of making it less conspicuous in the landscape.

Simonson and Royall [135], a landscape architect and engineer, write about the specific goals and procedure of developing successful planting designs for roads. An important recommendation is the conservation of existing plants:

“Much of the natural growth along the highway should be conserved. Frequently a slight change in location will save a particularly fine tree or clump of trees” [135].

The authors write that the desirable planting design procedure is where landscape architects make preliminary field studies with the engineering plans in hand, draw up the design then review it in the field prior to drawing up final plans. This approach indicates the reliance on field observation and (presumed) continued dialogue among the professionals involved in the field.

Simonson [136] also argues that landscape architects should systematically study the native flora along highways. They will then be able to make an “understanding *interpretation of nature* “(italics Simonson’s) for their planting designs[137]. Simonson advocates using fewer kinds of plants in larger quantities, and arranging them in “natural

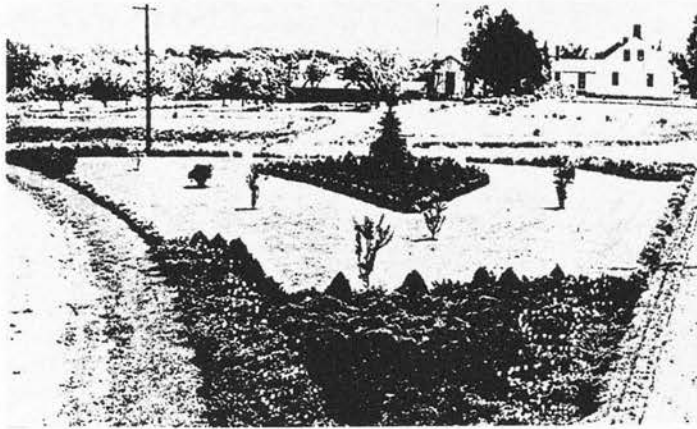


Figure 21 Simonson’s illustration of how not to plant a road intersection. He considered this approach too formal and expensive. From Roadside Planting, 1936, p170

groupings or colonies”. He uses Hogarth’s term “fitness” as a reason for designing this way. Natural colonies will create “a unified impression of general fitness and scale with the countryside” [137]. Simonson distinguishes between the garden or estate design, which he describes as static, (Figure 21) and highway design which has more dynamic requirements.

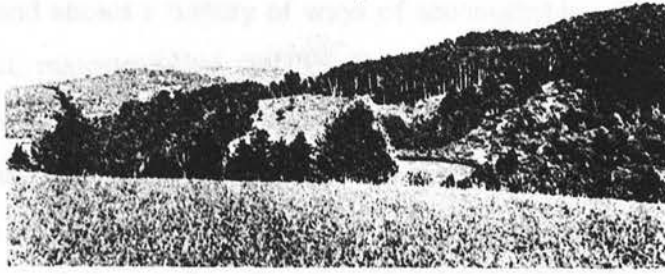


Figure 22 Simonson's illustration of fitting the road into its landscape surroundings. "This is the type of broad landscape view to which the highway strip should be an inconspicuous foreground." (Simonson, Roadside Planting, p173)

Highway planting design is where "Nature is to be followed as closely as possible with the fullest utilization of native materials or harmonizing types" [137]. (Figure 22)

The Committee of the Associated Landscape Architects of Cleveland, Ohio [138] published guidelines for the improved planning and planting of highways. The Committee advised a naturalistic approach in which the planting arrangement "should not be a horticultural assertion that the power of man has been able to assemble from the far corners of the earth different species of the vegetable kingdom" [139]. Like Simonson, the committee pointed out that high-speed travel precluded appreciation of garden type detail and advocated large masses of single species, with the occasional introduction of other species. "The objective at all times should be to use native plants naturally arranged" [140].

2.4.3 - Mid Twentieth Century Publication on Road Design

Snow's The Highway and the Landscape [4] was an outcome of a professional symposium on highways. It contains essays by experienced engineer FW Cron and landscape architect Gilmore Clarke. Both argue for more sensitivity in highway design. Cron insists that overall location of a highway be approached with a respect for and knowledge of natural topography. Clarke agrees with this, and adds that besides skilful location, a highway "should have wide rights of way, pleasing alignment, and become an intimate and integral part of the terrain it traverses"[141]. Both experts believed that a

highway should be more than strictly utilitarian, that it should please the public through its artistic merit [142].

Crowe [2] explains the reasons for designing roads which blend with existing urban and rural landscapes, and shows a variety of ways of accomplishing this. Crowe, an English landscape architect, maintains that the “English landscape tradition may be taken as a valid starting point for the landscape of roads” due to its structure of forward movement along a path where scenes unfold before the pedestrian [143]. Crowe examines the road at all levels, from its regional location to its paving details. An important contribution of the book to design knowledge is its advocacy of using native plants and discussion of planting designs which are suited to various speeds. The specifics of design are based on Crowe’s research into the effect of speed on perception of plant mass and texture.

Crowe and McCluskey both make the case for graceful alignment of roads. Sylvia Crowe says that it gives the road the appearance of “inevitability which is the result of infinite care” [144]. She cites the German autobahn engineers as pioneers of sympathetic correlation of vertical and horizontal curvature. According to Crowe, the German engineers found this association to have significant effect on driving experience.

McCluskey [3] expands upon Crowe’s ideas. His objective is to encourage the best possible road design by providing a well reasoned argument for, and examples of, sound design components. The book provides solid, well illustrated and lucidly explained information on many aspects of road design. McCluskey draws on sources, such as AASHO, (American Association of State Highway Officials) publication *A Policy on Geometric Design of Rural Highways* – the ‘Bible’ of American road planning - and German standards *Richtlinien für die Anlage von Landstrassen-Linienführung* (RAL-L) to substantiate his observations on alignment, safety and road structure. Like Crowe’s book, this is grounded in observation and the author’s professional expertise in road design. Public opinion does not enter into the book - it is essentially a manual for designers.

Appleyard, Lynch and Myer [1] wrote one of the first works to take into consideration the experience of the motorist by asking the public to record its experiences on a specific road. They asked front seat passengers commuting on a six and one-half mile stretch of the Northeast Expressway, near Boston, Massachusetts to record their observations verbally and graphically. Twenty participants were asked to sketch views within a brief

time limit. The sketch technique provided data on the tempo of attention and the objects that draw attention. Verbal comments were recorded by research assistants who then transcribed and timed and analysed them for the tempo of attention, for the objects of attention and for some of the more obvious signs of emotional reaction [145].

The technique used by Appleyard, *et al* required that the motorist make repeated journeys, record aspects of those journeys and acquiesce to the presence of a stranger, (the research assistant), in their vehicle. The strength of this technique is that the researchers were able to ascertain a fairly complete picture of the motorist's visual experience.

Although least five other highways in the northeastern USA were studied and recorded only the Northeast Expressway used a public survey. The analysis limits itself to visual aspects of design which affect drivers and passengers. Some of the conclusions about design seem more applicable to urban situations. For example, the notion of focal points as being important in orientating oneself in a complex urban environment may not hold true in rural landscapes, such as that of the Blue Ridge Parkway.

2.4.4 Contemporary Road Design Publication

Few contemporary road design publications deal with issues of landscape architecture. The majority of contemporary publications on road design pertain to technical issues. However, Fogarty [146] writes of the art of parkway design. He compares the George Washington Memorial Parkway (GWMP), Virginia and Washington, DC, to I-66 in its Alexandria, VA section. He describes the interstate as unpleasant and akin to driving through a tunnel due to the sound barriers built to protect the adjacent residential developments. The parkway, on the other hand, is "refreshing" [147]. Fogarty quotes Wilbur Simonson, designer of the GWMP, in identifying the important value embedded in parkways. "This highway (referring to the GWMP) was designed to mean something to people...Its vistas designed to facilitate something called 'making pictures as you drive'" [148]. Fogarty also points out the positive relationship of parkways to the natural context and argues that the green corridors of urban parkways need to be protected from encroachment.

There is a plethora of articles related to the functional aspects of roads. Relevant to this thesis is publication on alignment and visual aspects of driving. One of the issues is the contradictory results related to the safety of spiral curves. Council [149] finds spiral

curves to be unsafe on mountain roads but suggests that more research is necessary. Smith and Lamm [150] argue that they are safe and aesthetic. They compare alignment practices in Germany and the USA. Practical Highway Esthetics [151] is cited as making a case “for ‘safety in variety’, that is monotony is the enemy of good aesthetics and safe operation, and it dulls the enjoyment of the visual experience and diminishes the alertness that is essential for safe driving” [152]. The authors also note the work of Germans Hans Lorenz and Fritz Heller who began to study the aesthetics of high speed roads during the 1930’s. The article uses drawings that are very similar to McCluskey’s and the authors make many of the same points that appear to have been made previously by McCluskey, Snow and Crowe. The authors argue that good road view is important for safety and that a good view is achieved “if the view of the road appears to blend into the surroundings and if the direction of the road is readily apparent” [153]. They further state that optical guidance is enhanced if the edges of the pavement are marked distinctly.

2.4.5 Summary of Road Design Literature

A review of every issue of Landscape Architecture Magazine since 1910 pertaining to road design revealed that American landscape architects, beginning with the Olmsted Brothers, successors to FLO,Sr, were writing about and designing roads from 1910 to 1941. Concern with perception and aesthetics was found in the early literature of Eliot and Olmsted, Jr. Simonson [123] and the Committee of Associated Landscape Architects of Cleveland [138] advocated naturalistic planting design. Simonson’s tri-partite notion of the road experience conforms with Repton’s concept of the different areas within the design purview. Simonson and others thought that land use controls, such as restrictions on billboards or building development, were effective tools for controlling the distant view. The mid twentieth century writers, Crowe, Snow, McCluskey and others were concerned with how roads could be designed for enhanced aesthetics and positive contextual relationship with the surrounding landscape. Appleyard, et.al. conducted innovative research which elicited motorists’ responses to road views via illustrations. Since the 1960’s and 70’s, aesthetics and contextual concerns have virtually disappeared from all but a few publications. Nearly all of the recent publications appear to reflect functional, rather than aesthetic, concerns. Those concerned with aesthetics are not breaking new ground, but like Smith and Lamm are repeating theories proposed by earlier writers, such as Crowe. Thus the findings of this part of the literature review indicate a gap in the knowledge related to road aesthetics, design theory and principles.

2.5 Physical and Perceptual Foundations of Road Design

The literature on the physical aspects of road design is limited to optical considerations which have a direct bearing on road design issues such as safety and perception. Landscape perception is a relatively new area of research which did not exist during the design of the BRP. However, a review of this literature was undertaken with the idea that landscape perception research may provide insights on how travellers use and perceive the BRP. The perception literature is divided into two categories—general landscape perception research and landscape perception of roads.

2.5.1 Optical Aspects of Road Design

Connolly [154] and Schmidt [155], Doctors of Optometry, are concerned with the visual requirements of driving and relate human vision to the design of automobiles and the highway. The title of their article Visual Considerations of Man, the Vehicle, and the Highway (Parts 1 and 2) is remarkably similar to Simonson's [124] definition of the three basic elements of modern highway design – the driver, the vehicle and the road. Their perspective is that of optometrists concerned with road design, unlike Simonson whose perspective is that of a landscape architect. Schmidt describes the functioning of the eye. He notes that “At high speeds, the field of usable clear vision narrows, from a diameter of 180 deg on a stationary position of the driver to a diameter 42 deg at a speed of 60 mph, with fixation straight ahead” [156]. Schmidt thinks the reduction in the field of vision may be partly psychological because “at high speed attention is directed straight ahead and peripheral vision may be suppressed or ignored” [156]. Connolly explains the evolutionary development of the visual sense. He notes that evolution has resulted in the human capability of tracking fast motion through micro-movements of the eyes, a trait that also allows us to gauge traffic speed. Connolly makes an important point for vehicle and highway designers when he states “(M)an's sensory systems were developed to be used to reinforce each other...sight and sound go hand in hand, one without the other has much less meaning” [157]. Vision has become the primary sensory input for modern drivers as the automobile insulates them most efficiently from the external environment. The modern vehicle which is practically free of vibration eliminates a kinaesthetic means of evaluating speed.

Connolly argues that drivers who are physically at ease will be psychologically at ease and that such a condition is desirable for driving [158]. He describes the visual demands of urban driving, (multiple closely spaced signs, many vehicles, the need to make quick

decisions, etc.) and states that rural highways are less taxing visually, (and presumably psychologically). The reason for this is the ability of the eyes to swing wider arcs instead of having to remain centred on the road and immediate adjacencies. Connolly's finding that the eyes are more relaxed when scanning wider angles seems to bear out Hogarth's theory that the eyes are capable of "taking in considerable spaces at a sudden view" [159]. On rural highways, Connolly states, the eyes may swing 10 – 15 degrees left and to the right occasionally 20 degrees, when the stimulus is sufficient to demand attention. Stimuli, such as terrain variation, vistas of fields, groups of trees are identified as being sufficient to prevent visual monotony [160].

On limited access rural freeways, (such as American Interstates) Connolly thought there might be too much monotony, partly due to the extremely wide area cleared of trees, levelled terrain and long straight stretches [161]. Schmidt states that distance perception "becomes very difficult in an empty field, that is, in a 'structureless' field" [162].

Connolly describes the "paced visual performance" which occurs during this type of freeway or interstate driving. Paced visual performance does not allow for varied patterns of eye movements and can bring on highway hypnosis. Only small, discrete horizontal eye movements of 5 – 10 degree lateral movement are required during this type of driving. Almost no vertical eye movement is required—perhaps an occasional glance at the speedometer. "Paced visual performances have a tendency to deteriorate much sooner than free visual eye movement performances, as there is no way that a driver can replace these horizontal movements with vertical or diagonal eye movements to relieve the strain on the neuro-muscular visual system" [163].

Thus the case for scenic variety and a controlled speed is supported by ocular science. Controlled speed and fewer visual demands from signs, intersections and traffic allow the eye to deviate from the central area of the road to swing in wider arcs. The wider arcs are also associated with variety—varied terrain and vegetation—are associated with freer, more relaxed eye movement.

2.5.2 Landscape Perception Studies

There is considerable literature related to landscape aesthetics as it is a well developed branch of philosophy. However, few theories have considered roads *per se*. Contemporary landscape aesthetic theory could not have influenced the design of the

BRP as it did not exist when the design was developed. However, it may provide insights related to how travellers use and perceive the BRP.

In trying to find out what humans like about landscape and why they like it, Appleton [164] divides the field between those concerned with interpretation of landscape and those concerned with experience of landscape.

He uses eighteenth century aesthetic theory as a beginning point of his consideration. Both Hogarth and Burke are mentioned as writers who helped to develop the theory. Appleton is dismissive of Hogarth's influence on landscape:

"...Hogarth's aesthetics in fact had little to say directly about landscape...Undoubtedly, the most influential idea to come out of the *Analysis* was that aesthetic properties reside intrinsically in certain shapes of line—more especially the wavy line and the serpentine line..."[165].

Appleton identifies the problem with Hogarth's theory (and that of other 18th century theorists) is that it pertains to a general inquiry on the nature of beauty and is not specifically about landscape.

Appleton considers Burke a milestone in the development of landscape theory.

"...(H)is contribution was not only more strongly founded and better argued but also more directly, though not exclusively, relevant to landscape. ...the text as a whole may be said to have a more direct relevance to our subject than anything previously written" [166]. Burke makes a link between emotion and various types of scenery and as Appleton says, used landscape as examples, whereas Hogarth rarely did. Moreover, Burke's theory is more general than Hogarth's. Burke does not tell the designer to rely upon any specific technique or tool (i.e. the serpentine line) but that certain feelings are associated with different types of landscapes. He does not define a precise formula for eliciting these feelings. After examining the artistic theories for appreciation of landscape, Appleton goes on to discuss the biological theories. Lorenz and Morris, Spenser and Daniels are cited for their research on animal behaviour in the environment. From this evidence, Appleton proposes a theory of *prospect and refuge*.

"(T)here is much evidence to show that at both human and sub-human level the ability to see and the ability to hide are both important in calculating a creature's survival prospects" [167].

Appleton classifies landscapes where people have unimpeded opportunities to see as prospects. Landscapes where people can hide are refuges. Appleton bases his argument on habitat theory which “postulates that aesthetic pleasure in landscape derives from the observer experiencing an environment favourable to the satisfaction of his biological needs” [167].

Appleton notes that locomotion, or the ability to move freely in a landscape is important to aesthetic enjoyment. One wouldn’t wish to hide *all* the time in one place, or one would need to go out and get food so refuge will only suffice part of the time [168]. The ability to quickly scan the environment for prospects of various opportunities, say various paths to safety, are mentioned by Appleton as significant to human survival. Here he makes a case for variety. Hogarth’s argument is based on boredom, Appleton’s on the instinct to survive. “A path leading to a bridge conveys a more potent suggestion of movement opportunity than either the path or the bridge alone. Two paths converging on a bridge are even more effective in suggesting potential for freedom of movement within the habitat” [169].

Kaplan, Kaplan and Ryan (1998) cite Appleton’s theory in their book With People in Mind: Design and Management of Everyday Nature. [170] They write that understanding and exploration are basic human needs. “(P)eople have to understand their surroundings and... have opportunities for exploration” [171]. The organization of landscape elements makes a difference in how people understand the environment and its opportunities for exploration. An important point for designers is that while certain elements are attractive to humans, (foliage and water), it is not enough for these elements to simply be present. The way they are organized is crucial for the viewer to extract information and to make decisions based on what they see. This organization effects what a designer might call the design parti or composition.

Kaplan, Kaplan and Ryan surveyed environmental preferences by asking people to rate different scenes on photographs and slides using a five point Likert scale. Thousands of ratings indicated that organisation of space affects preference [172.]

Scenes that were rated highly had spaced trees and smooth ground. “The combination...leads to a spatial configuration that seems to be highly favoured. Such settings offer a strong contrast to both the large expanses and the obstructed views” [173].

This finding echoes Burke and Repton. Burke [85] wrote that smoothness is an inherent characteristic of beauty, whether it is the smoothness of a stone, a leaf or turf. Repton [104] also advocated the intermingling of trees and smooth ground.

Four key informational factors were identified by Kaplan, Kaplan and Ryan: **coherence and legibility** having to do with understanding a setting and **complexity and mystery** having to do with exploration of a setting. (Figure 23) Further, the authors claim that rapid visual assessment is made of a landscape scene during which the respondent extracts information of patterns of light and dark, textures, grouping and location of elements. This finding echoes findings in an earlier publication by Stephen Kaplan (1987) which describes the possible evolutionary basis for the need to rapidly assess a scene:

“From an evolutionary perspective there may be great advantages in making a quick, automatic prediction about the informational possibilities of a place one is approaching. In locomoting through varied terrain, the appropriate direction to be taken requires continual reevaluation as the very process of moving through the landscape opens up new vistas and new possibilities. Speed of processing is thus essential if one is to keep up with new information and respond accordingly” [174]. It is speculated that the reasons for rapid assessment have to do with survival, that is, the ability to make choices at an intuitive level that would lead one away from inappropriate environments toward desirable ones. [175] The ability to quickly “read” a scene or extract important visual information is important to roadway scenery which is viewed from a rapidly moving vehicle. Kaplan makes an important point about the use of the term “mystery”. Mystery is *not* associated with surprise because “(s)urprise requires that some aspect of a scene be unexpected. Mystery, as we intended it, refers to instances when the new information is not present, but is inferred from what is in the scene”[176].(*italics mine*) Kaplan mentions having had some misgivings over adopting ‘mystery’ as a term but found reassurance in discovering a similar usage in an American landscape design text by Hubbard and Kimball (1917) in which mystery is referred to as the ‘impossibility of complete perception’ [176]. It is interesting that Kaplan turned to Hubbard and Kimball for reassurance as they were among the second generation of American landscape architects following and supporting Frederick Law Olmsted, Sr.’s design approach. Theodora Kimball co-authored with FLO. Jr., the book *Forty Years of Landscape Architecture: Being the Papers of Frederick Law Olmsted, Senior* (1922) which chronicles Olmsted’s career and its philosophical underpinnings. [177]

In a later article, Stephen Kaplan (1988) argues that there are two views of preference rating studies. One view of preference is that it indicates aesthetic judgment and that cognition plays a significant role in such judgment. The other view is that preference involves decision-making and choice. Kaplan argues that preference is a “far more complex interaction between cognition and affect than either of these positions imply” [178]. Kaplan proposes another interpretation of preference judgment based on analysis of preference in humans and other mammalian species.

Kaplan (1988) cites mystery as an example of landscape preference reflecting the “intimate relationship between preference and cognition” [178]. “Mystery is not a surface property of a photograph that represents a scene. It requires, first, an interpretation of the three dimensional properties of the scene. Then it is necessary to determine if it would be possible to enter the scene, to move with reasonable ease across the ground plane. Finally there is the critical issue of whether one would be likely to learn more as one progressed into the scene. All of this inference takes place not only unconsciously, but also very rapidly. Mystery has been a major predictor variable in studies covering a wide range of environments” [178].

...“It is widely recognised that people work jigsaw puzzles, struggle with crossword puzzles, and read detective stories. It is misleading to attribute the attraction of these activities to novelty or curiosity; something much more specific is going on. People are carrying out basic cognitive processes; they are actively engaged in recognizing, predicting, and the like. The level of uncertainty in such circumstances is controlled; it tends to remain at a challenging but manageable level” [179].

“An environment that is well organized and distinctive is easier to understand. Complexity and mystery, by contrast, concern information that suggests the potential for exploration, either because of the variety of the elements or because of the cues that imply there may be more to be seen”[180].

Related to mystery, one of the four key informational factors identified by Kaplan, Kaplan and Ryan:

“The desire to explore a place is greatly enhanced if there is some promise that one can find out more as one keeps going. The suggestion that there is more to see is very compelling. There are various ways that the landscape provides hints of what is coming. A curved path is often more enticing than a straight one...The various studies of people’s

preferences for different environments showed that mystery was a particularly effective factor in making a scene highly favoured“ [181].

Bourassa (1991) provides further insights related to the Kaplan’s theory. [182] He notes that the Kaplans’ regression analyses of their preference matrix data “support the conclusion that ‘Mystery is the most consistent of the information factors’ ” [183] and suggests some possible interpretations of the results: “ (T)oo much coherence may lead to boredom and too much complexity may tax one’s cognitive abilities. On the other hand, legibility as defined by the Kaplans would always seem to be a good thing; mystery, in suggesting the availability of additional information, does not necessarily imply an overabundance of information being presented simultaneously. Additional information in the landscape may in many cases be discovered at one’s own pace, whereas complexity is defined by its immediacy” [184]. Bourassa seems to allude to a connection between the Kaplans’ findings and Appleton’s theory of prospect and refuge. He suggests that if a person sees a clear way of moving forward, and can proceed at an individually governed pace, s/he will feel secure in moving into a landscape where all is not revealed. Figure 23 illustrates an opportunity for unimpeded movement. There are no intersections with other paths, nor is the path strewn with debris or distracting objects. Thus the path is a clear, unambiguous, unencumbered means of accessing and exploring the landscape. In Figure 23, the path is legible, the wooded edge complex. However, note that one can see between the trees in the illustration, which indicates legibility.



Mystery can be a curving path.

Figure 23 - (Kaplan, Kaplan and Ryan, (1998), p 16)

In examining Kaplan's theory, Bourassa cites the work of Giblett, Itami and Fitzgibbon(1985) as a step toward understanding what constitutes mystery in a landscape. The study was based on 191 photographs from a rural site, evaluated by 36 landscape architecture student students.

"The authors found a high degree of agreement among the respondents regarding the identification of mystery. Also, five physical attributes were found to be associated with mystery; these were screening, distance of view, spatial definition, physical accessibility and 'radiant forest'"[184]. Bourassa found that the screening concept was vaguely defined and illustrated but that the three attributes positively related to mystery were : spatial definition, physical accessibility in wooded scenes and radiant forest. The definition of 'radiant forest' is "wooded areas where the immediate foreground is in shade and an area further in the scene is brightly lit" [184]. This definition of a mysterious scene echoes FLO's description cited earlier in this chapter, related to deep shade and "an opening reaching back for a considerable distance above, with glints of sun-lighted bits of water" [47]

Berleant (1988) differentiates between two types of aesthetic experience: the contemplative model associated with panoramic views and the engagement, or active model associated with more intimate views. He claims the "contemplative model is so securely established as to assume the status of an official doctrine" [185]. Berleant cites Shaftesbury and succeeding English writers of the 18th century as asserting that the intellect is solely responsible for aesthetic experience. The art object is regarded in "the light of its own intrinsic properties" and is distinct and separate from its surroundings. [185] Panoramic landscapes that are observed from a distance, or panoramic landscapes, are given as examples of this conscious, visual, distant, physically uninvolved model of aesthetic experience. [185]

Berleant cites Merleau-Ponty and Dewey as philosophers who maintained that perception starts with the body. It is not purely visual. This, Berleant claims, is a beginning for consideration of an active, or engaged, relationship between humans and the landscape. "The environment is not wholly dependent on the perceiving subject, it also *imposes* itself insignificant ways on the person, engaging one in a relationship of mutual influence...The environment is a field of forces continuous with the organism, in which

there is no real demarcation between them. Such a spatial pattern is yet a third model of aesthetic experience, one I shall call the participatory model, and it leads us to an aesthetics of engagement” [186]. In participatory models, landscape features reach out to effect, influence and engage the observer. Berleant claims the participatory model of aesthetic experience applies to landscape. “Perhaps the most apparent of these features is the path. Paths, of course, are especially rich in significance... What is most striking about paths is the way in which they act on us” [186]. Berleant quotes Bollnov’s (1961) description of a hiking path: ‘the path does not shoot for a destination but rests in itself. It invites loitering. However a man is *in* the landscape, taken up and dissolved into it, part of it” [187]. This recalls Kandinsky’s (1913) artistic goal: “I have for years searched for the possibility of letting the viewer ‘stroll’ in the picture, forcing him to forget himself and dissolve into the picture” [187]. Kandinsky was cited as an influence on the work of modernist Garret Eckbo, among others. The modernists, sought to design spaces in which people became part of the landscape, instead of mere spectators.

Berleant gives several examples of the implications of an aesthetics of engagement, including road design: “Roads, like paths, act on us in diverse ways, inviting us to move down them or putting us off.” [187] and “Highways should respond to the geological and topographical features of the countryside, conveying its contours to the driver and encouraging responses of respect for and participation in the rhythms of the landscape. The experience of motion and its fusion of visual and topographical traits must be the primary goals of the highway engineer, instead of considerations of speed, technical simplicity and geometrical directness. This would help make highway travel an experience of landscape and not an exercise in endurance, suffered as a means for gaining some distant destination” [188]. Berleant does not suggest the specific form for the highway but argues: “What is important are not physical traits (in a landscape) but perceptual ones, not how things are but how they are experienced. In such a phenomenological field the environment cannot be objectified; rather, it is a totality continuous with the participant. An environment can be designed to work in this mode, or it can be structured to oppose it” [189]. Berleant’s point that the environment is experienced in a continuous totality is an important counter argument to objectification. The present day environment is one where many buildings, highways and gardens have been designed as separate, discrete objects, devoid of context. As Berleant points, out such design is designed from an aesthetic perspective where the designer (and ultimately the observer or participant) is distant, remote and focused on only the object. The

complexity of the entire context is ignored. Although Berleant does not refer to ecology, the notion of designing within the complex, dynamic and holistic environment seems to acknowledge implicitly the importance of ecological perspective.

2.5.3 Road Related Landscape Preference Surveys

Publication on road aesthetics tend to refer to static visual experiences, such as vistas at BRP overlooks [190]. Appleyard, et.al, [1] cited in the Road Design Section of the Literature Review and Nassauer {cited in this section} were among the very few sources whose surveys sought to capture a more immediate and holistic response to the motoring experience.

Kent [191] hypothesised that different user groups would have different perceptions of and reasons for enjoying scenic road landscapes. A scenic route comprised of three highways in northwestern Connecticut was studied, (routes 195, 6, 169). Instead of focusing on specific views, the survey was directed toward eliciting responses to more general scenic attributes, such as: natural beauty, environmental impact, scenic variety, and cultural or historic features. Later in the survey, respondents were asked to rate features, such as: water, mountains, long distance views, vegetation, stone, walls, etc.

Three distinct groups were surveyed (total 249 people): residents living along scenic routes (95); people living or shopping in the study area (127); and experts (planners and engineers) employed by the Connecticut Dept. of Transportation (27). Data were gathered through a questionnaire sent to the residents and experts and administered personally to citizens living or shopping in the area.

The ratings of attributes of scenic routes ranked natural beauty highest, (4.8), followed by environmental impact (4.5) and characteristic landscape features, meaning contextual features such as stone walls (4.2) and scenic variety (4.0). Lowest rated items were length (2.6) and nearness to urban areas (2.5). Kent emphasises that besides beauty of scenery, variety was also valued. [192] "Although trying to define and measure beauty is obviously more challenging than measuring, for example, road length, a valid evaluation of scenic quality must include and probably should emphasize, visual aspects" [193] . Visual qualities, according to this interpretation, are more important to people than other characteristics, such as pavement quality and distance.

Respondents rated the following features highly: water (4.7); mountains, topographic change (4.6); long distance views, (4.5); natural vegetation (4.4), stone walls (4.4); unique or distinctive features (4.4); clearings (4.3); road following the lay of the land (4.2). Commercial establishments (1.9), multi family housing (1.8) and signboards (1.6) were rated lowest on the scale. A non matrix factor analysis, (Guttman-Lingoes's Smallest Space Analysis (SSA-III) was used to analyse the underlying patterns in responses.

Kent's first conclusion related to the survey findings is that the public considers the visual or scenic attributes of roads most important in designating scenic routes. Criteria related to physical conditions are less meaningful. Natural and cultural features are strong contributors to motorists' enjoyment of driving—(water, topography, historic sites, etc.) Signs and commercial operations were viewed as detractors to visual quality.

Kent found that the experts tended to rate scenic quality lower than the other groups. He concluded that the level of education is a background variable of considerable significance. He considered the difference in opinion between experts and non-experts as justification for obtaining input from local landscape users, not just relying on expert judgement in making scenic route or transportation related decisions.

Nassauer, [194] asked travellers to rate attractiveness of highway views in an unpublished study done for the Minnesota Department of Transportation. This study was part of the agency's AIMS initiative, (Aesthetic Initiatives Measurement System) whose purpose is to produce "concrete information about how design decisions are working to enhance the visual experience of Minnesota motorists"[195].

Data were gathered from travellers in vans using an open ended approach. Travellers were asked to (1) note anything they saw that was attractive or unattractive to them then (2) to rate each noted view on a five-point scale. Attractive was defined as anything perceived as 'nice to look at, pretty, enjoyable to see'. Travellers were told 'Attractive is what you think is attractive'[196]. Unattractive was defined as anything the viewer perceived as detracting from the landscape.

From the data, Nassauer identified four key design and maintenance related reasons for perceived attractiveness:

1. Good fit of the highway location and design with landscape context

2. Good design of elements within the highway right of way
3. Perception of nature as seen from the highway.
4. Good maintenance – from neatly mown grass to well maintained structures [129].

The most important reason for perceived attractiveness was (2) good design. Across all means, good design was ranked first or second in what people found attractive in the landscape of the road [197]. Good design included planting design, architectural details, well-designed and detailed bridges, walls and railings. There was overlap of categories. For example, categories 1, 2, and 3 overlapped in the following way: in areas that were considered natural, people had “heightened expectations for the planting design to look natural and consistent with context”[198]. Travellers perceived landscape context, design and nature together and indicated how they felt design should respond to natural context. Nassauer also found that in category 1, landscape context, travellers valued alignment of the highway which afforded broad views. Broad landscape vistas were very highly rated and Nassauer notes: “The effect of vistas is so powerful that one might think of highway design as an opportunity to construct vistas of the larger landscape and to design an appropriate foreground for these vistas” [199].

Noe and Hammitt’s [190] findings differ slightly from Nassauer’s. In the survey of 721 visitors of the vista landscapes along the Blue Ridge Parkway, they found no preference for the mountainous scenery of the southern section over the more rolling sections of the north. Preference ratings for the middle and northern section were just as high as for vistas in the southern section [200].

Hammitt’s essay Visual and Management Preferences of Sightseers concentrates on preferences at vista overlooks [201]. A lot of consideration was given to general landscape and land use typologies which were appropriated then modified from Forest Service criteria. A point that is made is that the viewer’s position relative to the view is important. The authors adapted directly from Litton’s (1968) typology. The three viewer positions below relate to Repton’s [104] ideas.

- Viewer inferior – the viewer is essentially below the surrounding landform.
- Viewer normal - an essentially level sight line is maintained by the viewer to survey the landscape.

- Viewer superior – conditions under which the observer's sight line drops below the level sight line to peruse the surrounding terrain [202].

The study used ratings of vista photographs to assess scenic overlook preferences. Noe and Hammitt assert that humans are “primarily “visual” processors of environmental information. Thus the study centres on evaluation of photographs. It is limited to vision and does not attempt to ascertain other sensations related to experiencing the road, or the landscape. As Appleyard, et.al. [1] point out, motorists move through the landscape. Their experience of the road involves vision, movement, (kinaesthetic), and to a lesser extent, hearing and smell.

Hammitt's survey had implications for BRP landscape management as it was found that respondents preferred open vistas to those blocked with vegetation. The least preferred vistas were those where foreground and middle ground vegetation blocked more than 50% of the vista [202]. Vistas containing water were preferred above all other views. Moving water was preferred over still water. Hammitt suggests that BRP managers could open up views of rivers [201].

Hampe and Noe [203] surveyed public preferences related to complexity of parkway scenery. The authors were trying to determine if there is a relationship between visual complexity and maintenance preferences. Five roadside scenes of the Natchez Trace Parkway (Mississippi, Alabama and Tennessee) were photographed at three different levels of maintenance (different grass heights and widths of mowing). Over 800 respondents participated in field interviews conducted along the parkway. Respondents were shown the photos and asked to rate them on a Likert scale ranging from 1 (best liked) to 5 (least liked). The authors assumed that high maintenance scenes would be preferred as they would show more contrast between background and foreground. High maintenance scenes showed foreground grasses mowed to trees backed by diverse shrubbery. The low maintenance scenes displayed diversity in the foreground by showing taller grasses. Respondents viewed both high and low maintenance scenes as equally complex. More complex scenes were generally liked. A link between aesthetic preference for complexity and highly maintained scenes could not be made with the data.

Akbar, Hale and Headley [204] surveyed 183 respondents on their perception of roadside vegetation. The survey was carried out in the fall of 1996 through on site questionnaires

at service stations and cafes along northern England's A-roads. The questionnaire was designed to find out about the importance of scenic beauty of vegetation as a characteristic of the roadside environment; assessment of beauty in present roadside vegetation and the type of vegetation preferred. A majority of respondents, (83%) felt that scenic quality of roadside vegetation is an important feature of the roadside environment. Variety was considered important by the public. 78% of the respondents preferred a variety of vegetation types along roads. A majority of respondents also preferred vegetation that blends in with the adjacent natural vegetation. These findings indicate a preference for vegetation to be part of the roadside scene, for a diversity of plant type and for native plants. The authors discuss the difficulties of managing roadside vegetation due to the dynamic state of the roadside scene. They also found that respondents were unwilling to pay for attractive vegetation "no matter what it costs" [205].

2.5.4 Summary of Physical and Perceptual Issues

Although many other aspects of perception research are of interest, the quality of mystery has the most relevance to the study of road design. Kaplans, et.al., Stephen Kaplan and Bourassa note that mystery is one of the most highly rated factors in a landscape preference studies. It appears to be the most compelling factor of the four identified by the Kaplans, in that it engages the viewer and draws her/him directly into the scene. Mystery connotes that there is more to be learnt if one proceeds into that particular setting. Although road environments were not studied by the Kaplans, like their path example, roads imply forward movement into another setting. Further, the Kaplans found that it is not enough for certain preferred elements, such as foliage and water, to be present in a scene, they must be organised so that the viewer can extract important information. The way landscape elements are organised is the purview of the landscape architect. (*italics mine*). Stephen Kaplan (1987) found "reassurance" in his adoption of the term mystery from a traditional landscape design text by Hubbard and Kimball (1917) in which mystery is referred to as the "impossibility of complete perception"[176].

Kaplan cites the quality of mystery (based on a survey in which participants rated photographs) as associated with

1. the interpretation of three dimensional qualities of a landscape
2. the perception that it is possible to enter and move with ease into a scene
3. the notion that there is more to be learned as one progresses into the scene.

According to the Kaplans, et al and Kaplan, the ability to extract information quickly from a scene is important, as well as, the idea that the scene hold the potential for exploration and discovery. "The desire to explore a place is greatly enhanced if there is some promise that one can find out more as one keeps going...There are various ways that the landscape provides hints of what is coming. A curved path is often more enticing than a straight one"[181]. The concept that mystery has great appeal to humans is followed up on by Bourassa who thinks that mystery suggests the availability of additional information in a landscape that can be discovered at one's own pace. [194] The relation between pace or speed and an environment's visual information was also discussed by Connolly and Schmidt who state that peripheral vision is suppressed as speed increases. The ocular aspects of perception indicate that eye muscles need to be "exercised" through horizontal, arcing movements to the left and right sides of the road. These movements counter the effects of concentration on a central point in the road ahead which is the cause of highway hypnosis. It would appear that the Kaplans' concept of mystery indicates a level of engagement and mental stimulation that also offsets boredom and hypnosis. Berleant distinguishes between panoramic views which he associates with static, distant or contemplative forms of engagement and intimate views which he associates with active engagement. The Kaplans use the example of a curving path as illustrative of mystery. Berleant cites paths as the ideal model of participatory, active, aesthetic engagement. Unlike the Kaplans, Berleant goes beyond the path to discuss the potential for improving road design based upon the theory of active engagement: "The experience of motion and its fusion of visual and topographical traits must be the primary goals of the highway engineer...This would help make highway travel an experience of landscape and not an exercise in endurance, suffered as a means for gaining some distant destination" [190] Berleant's important point is that landscapes are experienced as continuums, not as discrete objects. Thus, in his view, roads which respond to contexts of topography and geology engage the observer (motorist) in an active form of aesthetic appreciation.

Hampe and Noe and Noe and Hammitt conducted surveys related to maintenance of parkway vistas. Noe and Hammitt found a preference for highly maintained vistas along the BRP. Hampe and Noe found a preference for complexity in scenery. Taken together, these findings might be an indication that respondents appreciate a variety of scenery—both clear, distant vistas and more vegetated views. Kent's study indicated that respondents, particularly non-expert respondents, appreciated natural scenery in the roadside setting. Nassauer's was the only study which did not use photographs as a

method of eliciting opinion. Instead, researchers road in vans with participants and encouraged them to respond to the passing scenery. Such a method would seem to provide a fuller view of the motoring experience. Also unlike the other surveys, Nassauer's conclusions relate specifically to road design and maintenance. An important finding from the Nassauer survey was the respondent's view of design. Across all means, good design was ranked first or second in what people found attractive in the landscape of the road [193]. Good design included planting design, architectural details, well-designed and detailed bridges, walls and railings.

2.6 Summary of Literature Review

As mentioned in the introduction, the concern of this thesis is road design theory and principles; and the importance of the BRP as a road whose goal was “to make available scenic beauty” (National Park Service Blue Ridge Parkway *Purpose of the Blue Ridge Parkway - Chapter I Div A Section 1*, (no date) Asheville, NC Blue Ridge Parkway Archives, sheet 3). Therefore, a range of literature was investigated. Hundreds of articles, essays, books and book chapters were read and assessed for relevance to the topic. Four areas of interest were identified in Section 2.1:

1. literature pertaining to the BRP's design, natural and political histories
2. literature pertaining to American landscape history and theory foundations
3. literature pertaining to road design theory foundations
4. literature pertaining to physical and perceptual foundations

A summary for each independent area was made and can be found earlier in this chapter following the review of literature of each area. This conclusion provides a synopsis of the four areas and makes connections between them.

The review of literature related to the Blue Ridge Parkway histories indicated a dearth of information regarding the design theory and inspirations for the BRP design. Stanley Abbott was identified as the chief designer of the BRP, and the person responsible for the vision behind it. Thus, it would be useful to find out more about Abbott's background and his vision for the parkway. An overview of American landscape architecture prior to the design of the BRP indicates the possible influences of early modernism which emphasised social purpose and active engagement with landscape; the Prairie School which urged the use of native plants in design; and the general acceptance in America of the picturesque style, a form promulgated by Frederick Law Olmsted, Sr., founder of the profession of landscape architecture in the United States. Beveridge, Newton, Jellicoe,

Gotthein and other experts claim that America was profoundly influenced by the English landscape school. According to Jellicoe, the English landscape style associated with Repton “has survived, flourished and become universal” [64]. Olmsted, (called by Nolan “the American Repton” advised students of landscape architecture to read English theorists Repton and Price, among others. [104]

An investigation into English picturesque theory led to the theories of William Hogarth and Edmund Burke as “points of origin”. Hogarth and Burke are identified by Gotthein as the first to write treatises outlining principles and describing the physical form that best expresses the English landscape school.[109] Hogarth’s and Burke’s treatises influenced subsequent writers and practitioners in England and abroad. Three themes of Hogarth’s and Burke’s treatises were explored in detail: beauty, variety and motion. Hogarth claimed that beauty resides in the serpentine “Line of Grace”, a fundamental structuring agent for successful composition. According to the theory, sculpture, paintings, furniture and everyday objects based upon and incorporating the serpentine line appear innately graceful and beautiful to the viewer. The serpentine line was argued by Hogarth, to be an integral part of human form and of the natural world. The line was also found in landscape, although his treatise is not principally about landscape. Hogarth speaks of a general pleasure and mental stimulus associated with pleasing works of art including, somewhat tangentially, landscapes. Burke assigns more specific emotions to landscape scenes. Sublime scenes, such as majestic mountains, he says, induce powerful emotions of astonishment, awe and a sense of being overwhelmed. [92] Beautiful scenes, such as smooth, pastoral landscapes trigger feelings of love. The love inspired by beauty is uncontrollable and irrational. “It demands no assistance from our reasoning; even the will is unconcerned.”[93] A point of difference between Burke and Hogarth is that Burke emphasises the absence of rational control in favour of an intensely emotional engagement with landscape. Hogarth’s theory is directed more toward developing a rational way of looking at and of creating art.

A survey of road design literature included a review of every issue of Landscape Architecture Magazine since 1910 that pertained to road design. Landscape Architecture Magazine is the “core element in the body of knowledge about the profession of landscape architecture” in America [206]. This investigation revealed that landscape architects were engaged both professionally and as writers in the area of road design. The major area of their endeavours was in parkway design. Gilmore Clarke and Wilber

Simonson were leaders in the field. Simonson pioneered the artistic use of spiral curves in motor roads and advocated blending the road and landscape through the use of native plants in “natural” groupings. Both landscape architects advocated grading of the motor road to conform with surrounding topography. After World War Two (1945), parkways (for the most part) ceased to be designed and written about. Technical issues, such as, speed and safety began to dominate the literature with the exception of practically oriented books by Snow, Appleyard, et.al, Crowe and McCluskey. Recent road related publication reflects functional, rather than design, concerns and is indicative of the absence of landscape architects from the field’s concerns.

Contemporary literature related to physical and perceptual research revealed a lacking in terms of design theory. Nearly all of the road perception surveys were based on the rating of photographs. Hampe and Noe, and Noe and Hammitt conducted surveys related to maintenance of parkway vistas. Noe and Hammitt found a preference for highly maintained (cleared) vistas along the BRP. Hampe and Noe found a preference for more complexity in scenery. Taken together these findings might be an indication that respondents appreciate a variety of views—both cleared, distant vistas and more vegetated views. Kent’s study indicated that respondents, particularly non-expert respondents, appreciated natural scenery in a roadside setting. In Nassauer’s study, respondents rode in vans in which researchers recorded their comments and ratings of road design and maintenance issues. An important finding from this survey was the public’s view of design. Across all means, good design was ranked first or second in what people found attractive in the landscape of the road. Good design included planting design, architectural details, well designed and detailed bridges, walls and railings.

Scientifically based research by Connolly and Schmidt has shed light on the ocular aspects of driving. That information supports landscape variety as an antidote to highway hypnosis due to its stimulating effect upon ocular muscles. Kaplans, et.al., Stephen Kaplan and Bourassa note that “mystery” is one of the most highly rated factors in landscape preference studies. Berleant cites paths as the ideal model of participatory, active, aesthetic engagement – a form of engagement which seems to conform with modernism’s view that people should be *in* rather than *looking at* a landscape design. Berleant’s important point is that landscapes are experienced as continuums, not discrete objects. Thus, in his view, roads should respond to topographical and geological contexts and engage the motorist in the “experience of motion and its fusion of visual and

topographical traits” (Berleant, 90). It is striking that Stephen Kaplan (1987) turned to a traditional landscape design text by Hubbard and Kimball(1917) for “reassurance” in his adoption of the term mystery. The Hubbard and Kimball definition of mystery is “the impossibility of complete perception”[176].

Mystery is a thread linking contemporary preference studies to the 18th century English treatises of Hogarth and Burke. Kaplan, Kaplan and Ryan and Stephen Kaplan’s landscape preference surveys indicate mystery as “a particularly effective factor in making a scene highly favoured” [181]. Stephen Kaplan (1987) states that while scenes high in mystery can vary widely, “what these scenes share is a complex relationship between the observer and the environment” [207] Such scenes offer the promise that “there is more to find out as one keeps going...a very compelling (suggestion)” [208]. In the mid-late 1800’s Frederick Law Olmsted identified mystery as an effect to be sought in landscape architecture. In the design of the Biltmore’s approach road he strived for the effect of “richness, delicacy and mystery” [47]. Hogarth’s also identified mystery as an important criterion of design. He used the analogy of the wanton chase or attraction of the riddle:

“The eye hath this sort of enjoyment in winding walks, and serpentine rivers...composed principally of what I call the *waving* and *serpentine* lines...that *leads the eye a wanton kind of chase...*” [76]. Hogarth based his theory of beauty on his own observations and experience as an artist. Thus while mystery has been identified (or confirmed) scientifically as a landscape preference for twenty years normative theory identified mystery as an important design criterion two hundred and fifty years ago. It dates back at least as far as Hogarth’s treatise (1753). This is an important illustration of how normative theory can be the basis of scientific (environment/behaviour) research. Groat and Despres (1991) contend that environment and behaviour research would benefit by being more concerned with descriptions and explanations of physical form and that design theory is an “appropriate basis for studying the significant physical attributes of the built environment” [209]. This observation made me more keenly aware of the importance of normative theory and helped to direct the focus of this research into that area.

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3.1 Introduction

Miles and Huberman (1994) state: “A conceptual framework explains, either graphically or in narrative form, the main things to be studied—the key factors, constructs or variables—and the presumed relationships among them “[1]. The conceptual framework presented in this chapter presents the focus of the research, hypothesis and objectives.

Despite the fact that so many roads have been and continue to be built or modified in the USA, little research has been conducted in the area of road design theory. This thesis attempts to address this lack by studying the design principles of the Blue Ridge Parkway and assessing them in light of aesthetic theory. As mentioned in Chapter One, this is a need identified by the Transportation Environmental Research Programme:

“Although a significant body of literature exists in regard to bridge aesthetics, formal transportation research does not yet provide a working definition of "successful" highway design in terms of aesthetic, social, and environmental characteristics...”[2]

The literature review confirmed a dearth of publication on road design principles and theory in the last part of the twentieth century. Prior to that time, particularly between 1910 and 1941, American landscape architects engaged in and wrote about road design. They were concerned with the broad design ramifications of roads, including road structure, how roads fit into topographical contexts and cultural contexts; and the planting design of roads. Although several excellent books were written on road design during the middle part of the twentieth century by and for landscape architects, in America the profession's involvement narrowed to the cosmetics of “added on” planting design to try to “beautify” roads after they were built. Since the 1970's, publication has centred on technical issues, such as safety. Contemporary literature revealed the role of optical science in the motoring experience. Landscape preference research may also have a role to play in road design theory. An important link between twentieth century scientific theory and eighteenth and nineteenth century normative theory is the finding by the Kaplans, et.al. that “mystery” is a strong landscape preference. Hogarth and Burke, and Olmsted, among others, had identified this as an important design criterion centuries earlier.

The literature review of the history of American landscape architecture revealed the possible influences upon the BRP: early modernism's espousal of social purpose and designs which actively engaged viewers *in* the design; the advocacy of using native plants by the Prairie School; and most important, the pervasive influence and broad acceptance of the English picturesque as a design form (promulgated through the efforts of Frederick Law Olmsted, Sr, founder of the profession of landscape architecture in the USA). The foundations for the picturesque in England were traced to treatises by Hogarth and Burke which specified principles for successful composition and design. These principles are explained further in Section 3.3.

3.2 Purpose of the Study and Conceptual Framework

The broad intention of this study is to understand the design principles of the BRP in order to contribute to road design theory. My perspective is that of a landscape architect who has worked as a designer for over two decades. This professional background has influenced my approach to problems and will colour and shape this inquiry. I believe that one can learn about theory by studying the phenomena, or physical design attributes, of the BRP. This follows Hillier's (1996) definition of theory: "Theories are propositions about hypothetical processes, which might be responsible for the regularities we see in phenomena" [3].

The purpose of this study is to explore the design theory of the BRP through archival documents and elite interviews with the designers, with the intent of using the design theory to develop and test a survey instrument using a sample from the population. The first phase is the qualitative exploration of the design principles of the Blue Ridge Parkway. This was accomplished by examining archival sources including: the original drawings, memoranda and reports associated with the early design phase (1934-38), and documents related to the designers' education. Elite interviews were conducted with professionals associated with the early days of the BRP design: William Hooper, Robert Hope and Ted Pease. The design principles formed the basis of a road design theory for the BRP which was examined in conjunction with the theories of Hogarth and Burke. Four important design attributes were identified: the serpentine "Line of Grace", variety, motion and emotion. The second phase of the study explored perception of those attributes by a sample of the population. (See Figure 24)

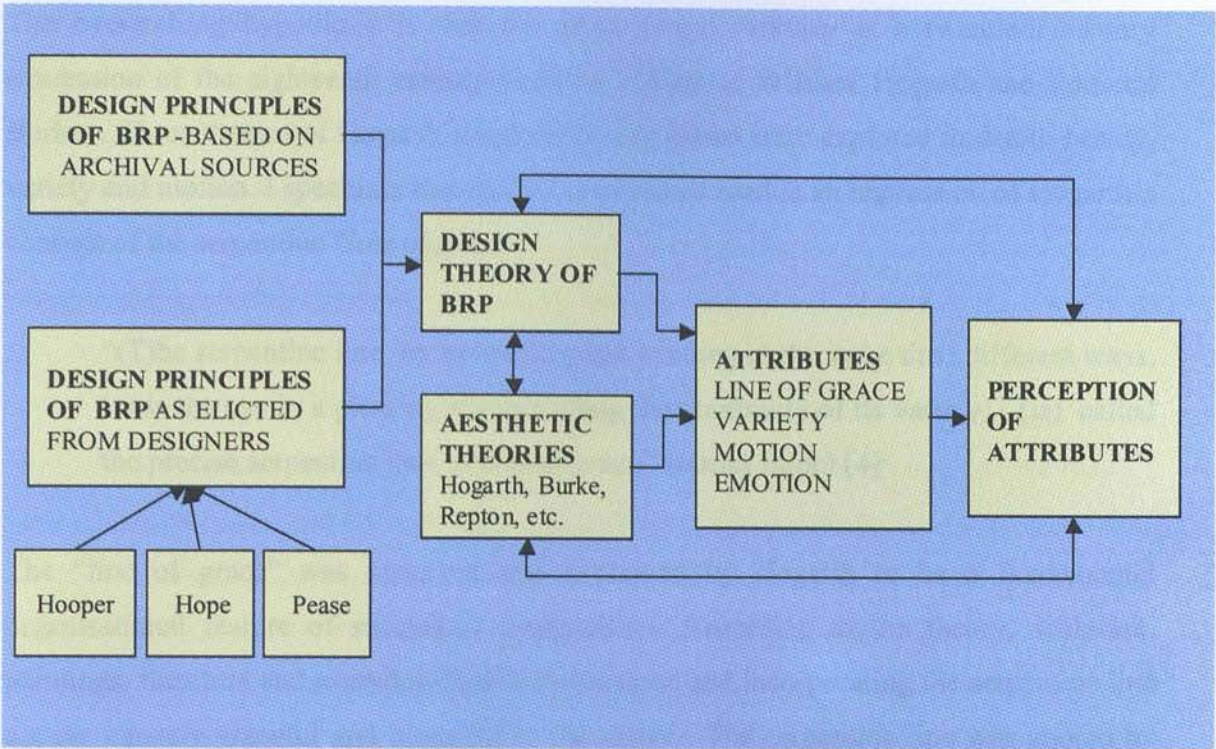


Figure 24 – Conceptual Framework Diagram

3.3 Research Objectives and Hypotheses

The **first objective** of the study is to determine whether the designers of the BRP consciously used the 18th century theory in the parkway design. Did the designers consciously select the English Picturesque as a basis for the design of the road and associated landscape?

The **hypothesis** is that the designers did use the principles of Hogarth and Burke to design the parkway, specifically: Hogarth’s serpentine “line of grace”; Hogarth and Burke’s principles of variety and motion; and Burke’s concept that positive emotion is related to certain types of landscape scenery)

The **second objective** of the research is to determine if current public experience of the parkway is consistent with the theoretical principles of Hogarth and Burke.

The **hypothesis** is that the attributes associated with Hogarth and Burke’s theories will result in a positive motoring experience. The serpentine “Line of Grace”, variety , motion

and emotion are considered key constituents of beauty. Thus it is expected that BRP motorists will associate these principles with beauty.

The overarching hypothesis is that the Blue Ridge Parkway is a twentieth century expression of the eighteenth century aesthetic theory of William Hogarth and Edmund Burke. . Three themes of Hogarth's and Burke's treatises were explored in detail: beauty, variety and motion. I speculate that the parkway motor road is an expression of Hogarth's concept of the serpentine "*line of grace*".

"(T)he serpentine line, by its waving and winding at the same time different ways, leads the eye in a pleasing manner along the continuity of its variety,...(is) called the precise serpentine line, or *line of grace*" (*italics mine*) [4]

The "line of grace" was observed and explained by Hogarth to be a fundamental organisational feature of successful composition. According to the theory, sculpture, paintings, furniture and everyday objects based upon and incorporating the serpentine line appear innately graceful and beautiful to the viewer. The serpentine line was argued by Hogarth, to be an integral part of human form and of the natural world. The line was also found in landscape, although his treatise is not principally about landscape:

"The eye hath this sort of enjoyment in winding walks, and serpentine rivers, and all sorts of objects, whose forms, as we shall see hereafter, are composed principally of what I call the *waving* and *serpentine* lines...that *leads the eye a wanton kind of chase*, and from the pleasure that gives the mind, intitles it to the name of beautiful..."Hogarth, [5]

Although Hogarth's ideas were criticised by his contemporaries and later theorists, his work provides a framework for understanding the "beautiful" which seems relevant to the BRP. The emphasis on the waving serpentine line as a central organisational feature is particularly apt. The BRP motor road is the main means of experiencing the parkway. The road consists of multiple linked spiralled curves which bear a close resemblance to Hogarth's "Line of Grace". The safety effect of the curves has been researched by Council (1998), for example, who questions the safety benefit of the spiral on two lane roads in steep locations. However, there is no published research on the experiential effect of the curves or their effect on motorists' perception of roadway landscape.

Burke wrote of the effect of gentle, vertical motion upon landscape perception.

“(T)here is a species of motion which relaxes more than rest; a gentle oscillatory motion, a rising and falling...Most people must have observed the sort of sense they have had on being swiftly drawn in an easy coach on a smooth turf, with gradual ascents and declivities. This will give a better idea of the beautiful and point out its probable cause better, than almost anything else” [6]. Hogarth also considered vertical motion, as well as, horizontal motion to be important to beauty. He used analogies of a ship rocking on the ocean’s waves and the subtle up-and-down motion of the minuet as examples of activated serpentine lines.

Both Hogarth and Burke wrote of emotions being associated with art. Hogarth speaks of a general pleasure and mental stimulus associated with pleasing works of art including, somewhat tangentially, landscapes. Burke assigns more specific emotions to landscape scenes. Sublime scenes, such as majestic mountains, he says, induce powerful emotions of astonishment, awe and a sense of being overwhelmed. [7] Beautiful scenes, such as smooth, pastoral landscapes trigger feelings of love. The love inspired by beauty is uncontrollable and irrational. “It demands no assistance from our reasoning; even the will is unconcerned.”[8] A point of difference between Burke and Hogarth is that Burke emphasises the absence of rational control in favour of an intensely emotional engagement with landscape. He is interested in the psychological effect of beauty and claims that smooth movement in a landscape, such as that of a carriage over smooth turf, is more “restful than rest” and that the serene feelings associated with this movement predispose one to positive perception of their surroundings. Hogarth’s theory is directed more toward developing a rational way of looking at and of creating art

3.4 Significance of the Study

The desire to test whether the characteristics of the BRP identified by Hogarth and Burke result in the perception of beauty follows a model called for by Groat and Despres in their 1991 essay. They suggest that while it is not possible to test the broad concept of beauty, it is possible to test whether the use of certain design principles result in the perception of beauty.

“The Renaissance-baroque view that architecture should adhere to the principles of beauty and harmony cannot be tested” [9]. However, they argue, “(I)t is possible to test whether the use of Renaissance-baroque principles of hierarchical ordering actually produce buildings that are interpreted as beautiful by a given set of people” [10].

This study is one of few which tests design theories postulated more than 200 years ago to enquire whether the principles hold true today. In other words, were the eighteenth century English aesthetic theories correct in their postulations, as perceived by a sample of the twenty first century motoring public?

3.5 References

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CHAPTER 4 – METHODOLOGY

4.1 Research Strategy

This research is a case study of the Blue Ridge Parkway which uses mixed methods to explore the parkway's design characteristics to make connections to theory. Groat and Wang (2002) make an argument for using case studies in design research. They adapt Robert Yin's definition of a case study (in order to make it more applicable to architectural research): "A case study is an empirical inquiry that investigates a setting within its real life context, especially when the boundaries between setting and context are not clearly evident" [1] The BRP study is an investigation of a design in its real life context.

"The case is studied in relation to the complex dynamics with which it intersects"[2]. See Chapter 5 for a discussion of the background and physical context of the BRP. Decisions regarding location, alignment and adjacent scenery are discussed in connection with their impact on the BRP design. As Groat and Wang point out, some advocates of case study feel that "too great a focus on generalising to theory can obscure the intrinsic value and uniqueness that each case offers on its own terms" [3] Thus, while one of the goals of the BRP research is to try to distinguish positive attributes of road design in order to contribute to road design theory it is possible that these attributes will not be generalisable to other roads due to the unique character of the BRP. However, in future studies it may be possible to test some facet of the findings for other roads.

Groat and Wang argue that mixing methods in order to triangulate the data "present the greatest challenge for the researcher in reconciling and integrating two (or more) disparate strategies. Yet, if done well, it may yield the greatest pay-off, since it may realise the complementary strengths of the combined strategies most fully"[4]. They contend that: "By definition, architecture (substitute landscape architecture) is a multidisciplinary professional field... research that combines strategies represents an important and necessary frontier in (the) field" [4].

According to Creswell (2003), the concept of mixing different methods dates to a Campbell and Fiske study in 1959 which used multiple methods to study psychological traits. Since then more researchers have mixed methods, "such as observations and

interviews (qualitative data) with traditional surveys, (quantitative data)”[5]. Mixing methods allows for triangulation of data sources. Further since all methods have limitations, “the biases inherent in any single method could neutralize or cancel the biases of other methods” [5]. Schloss and Smith [6] also claim that methodological triangulation is a means of confirming conclusions through more than one data source.

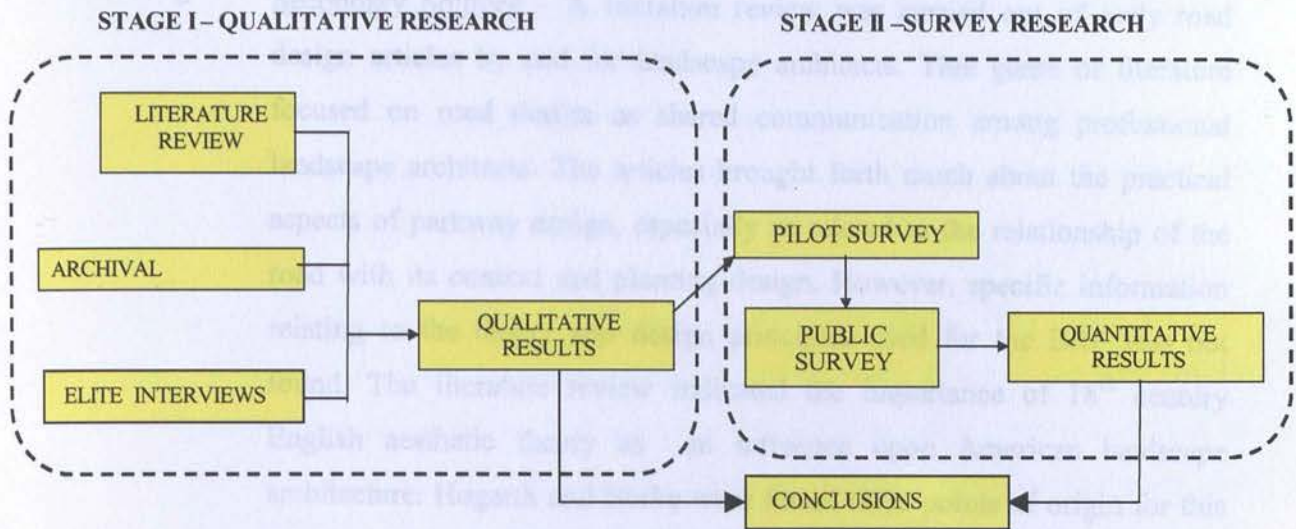


Figure 25 - Organisation of the Study

It was determined that a mixed methods approach would be potentially the most informative means of exploring the hypotheses (identified in Chapter 3):

1. the BRP designers did use the principles of Hogarth and Burke to design the parkway
2. the principles associated with Hogarth and Burke’s theories will result in a positive motoring experience.

Mixed methods would be helpful to explore the hypotheses from different angles. Further, it was hoped that the mixing methods would help to neutralize biases and realise complementary strengths of various methods. The research was divided into two stages: qualitative and quantitative. Qualitative methods were used in the Stage I to explore the first hypothesis. The qualitative results informed the quantitative strategies used in Stage II to explore the second hypothesis. (See Figure 25)

4.2 Qualitative Methods

To find out if the BRP was designed according to Hogarth's and Burke's principles, it was necessary to understand what the designers were trying to do and what they were trained in. To this end the following strategies were used:

4.2.1 Literature Review

- Secondary Sources – A literature review was carried out of early road design articles by and for landscape architects. This genre of literature focused on road design as shared communication among professional landscape architects. The articles brought forth much about the practical aspects of parkway design, especially as related to the relationship of the road with its context and planting design. However, specific information relating to the theory and design principles used for the BRP was not found. The literature review indicated the importance of 18th century English aesthetic theory as an influence upon American landscape architecture. Hogarth and Burke were found to be points of origin for this theory. Principles associated with their theories were identified and serve as a basis for the hypotheses of this study. Archival investigation (primary sources) was necessary to find out about the BRP design in order to adequately explore the hypotheses.

4.2.2 Archival Research - Primary sources included: BRP archival design documents, memoranda and drawings and elite interviews and Cornell archival documents pertaining to the education of Abbott and Abbuehl.

- Written documents Pertaining to Design - Correspondence, master plan reports, annual reports, interviews, memoranda and construction specifications related to the design of the BRP from 1934–1960 were reviewed. Evison's (1958) interview with Stanley Abbott, first Resident Landscape Architect of the BRP was very helpful in that it provided Abbott's insights and comments related to the design. Abbott's official annual reports were also helpful in describing the goals of the design and work accomplished to date. Correspondence between the designers was useful in explaining specific design issues and professional concerns. Construction specifications clearly explained design goals, materials and methods of construction.
- Design Drawings – Planned Land Use Maps (PLUMS), contract specifications, and drawings related to the early stages of the BRP design were examined to find out what the designers said they were trying to accomplish. Gary W. Johnson, Director of Planning for the BRP suggested that I look at Section 1Q (built between 1936-38) as representative of early design work. 1Q was one of the most completely documented sections. I was able to obtain full size, blue print copies of the PLUMS maps, Engineering Drawings and Development Plans for that section.
- Written Documents pertaining to Designers' Education - It was desirable to find out as much as possible about the professional training of the three senior landscape architects involved in the BRP design. Stanley Abbott's background was considered particularly important as he is credited with having established the vision for the parkway [6-8]. BRP archival research revealed that Abbott and Abbuehl had both been educated at Cornell University, Ithaca, NY. Very little information was found on the background of the other senior designer, Hendrick van Gelder. He was referred to by Abbott [7] as a "picturesque Dutchman". It is possible that he was educated in the Netherlands and immigrated to the USA. I visited the Cornell University Archives In September 2002 and obtained copies of course syllabi, reading lists and project descriptions for the time(s) Abbott and Abbuehl were students. Copies of their transcripts and information

related to their professors were also obtained. Abbott's transcript is found in Appendix One.

4.2.3 Elite Interviews

Elite interviews were conducted to further elucidate the design. Sproul [8] supports the idea that when complex information is desired, a face-to-face interview is useful. The advantage of elite interviews is that they can be structured to elicit more information than a traditional multi-respondent survey. Interviewees can elaborate on topics or even direct the interview into unexpected yet fruitful territories. One of the disadvantages of elite interviews is interviewer/interviewee interaction can bias the data [9]. The interview process was initiated by writing to persons identified in the archival material as having contributed to the design of the parkway. The BRP archivist provided addresses and names of living persons who were contacted first by letter or telephone. A list of interview questions was developed which provided a structure for obtaining essential information. Interviewees had opportunities to elaborate on issues they felt were important. The interviews typically lasted for 2 – 3 hours. They were conducted in the interviewees' residences or offices, face-to-face and audiotaped. The audiotapes were transcribed into Microsoft Word documents then sent to the interviewees for correction and additional comments. I then revised the original interview document based upon the corrections and comments. Finally, I obtained permission from Hooper, Hope and Pease, (the main interviewees), to submit the final version of the interviews to the BRP Archives where they now reside for the use of other researchers. The following BRP personnel were interviewed:

- William O. Hooper, BRP Agronomist and Land Specialist (1945-75). Hooper was interviewed on January 6, 2001 in Pensacola, FL. The interview was audio taped and transcribed.
- Robert A. Hope, Resident Landscape Architect (1956-58) (1963-2000). Hope was interviewed on November 4th 2000 in Roanoke, VA. He was interviewed a second time on April 4, 2001. Both interviews were audio taped and transcribed.

- Ted Pease, Landscape Architect of the North Carolina section (1938-74). Pease was interviewed by telephone on October 22, 2000. His responses were entered into a Microsoft Word document while he was being interviewed. Pease was interviewed a second time on November 5th, 2000 in Boone, VA. The second interview was audio taped and transcribed.

Two other interviews were conducted with persons associated with current, or more recent, management of the BRP:

- Lester Wood, Manager of the Roanoke, VA section of the BRP including Section 1Q, Smart View – Pine Spur, VA. Wood was interviewed on September 11th, 2000 at Rocky Knob, VA. This interview was recorded by hand then entered into a Microsoft Word document
- Gary E. Everhardt, Superintendent of the BRP (1977-2000). Everhardt worked as a civil engineer draughtsman for the BRP (1957-61) then moved up through the National Park Service to eventually become Director of the NPS (1975-77). Everhardt was interviewed on August 15th 2001 at the BRP Headquarters, Asheville, NC. The interview was audio recorded and transcribed. It is being reviewed by Everhardt prior to submittal to the BRP archives.

4.3 Quantitative Methods – Survey Research

The second question stemming from the hypothesis has to do with public perception of the parkway. This type of question lent itself to a public survey method. Moore[10] says that surveys are effective in learning about a wide range of behaviour, attitudes and opinions. The literature review indicated that previous studies on aesthetic perception have also used the survey method [11-13]. Surveys of a sample population are undertaken which are then used to estimate the characteristics of the larger population. [14] Subject selection is an important decision in designing the survey. The advantage of surveying a sample of the population is that information is gathered in a more economical and less time consuming process than surveying the entire population. (In the case of the BRP, the motoring population is about 16 million visitors per year) [15]. One of the disadvantages of this method is that the population sample may not accurately reflect the larger population. Random sampling, a form of probability sampling, is

the best means of eliminating bias in survey sampling. Simple random sampling is a method in which each element in the population has an equal chance of being selected [16]. This method has the advantage of being bias free but the disadvantage of requiring sizeable numbers. The closer the random sample size is to the actual population, the more representative it is. However, it is time consuming and expensive to conduct large surveys and ensuring that a survey is random is extremely time consuming. Truly random samples are hard to obtain. Convenience samples, in which people are studied because they are available or on site, are easier to get. The advantages are that they require less planning time and are easier to obtain. However the disadvantage is that the results may not be as accurate or reliable as random sampling [17]. While results from convenience sampling do not give as strong a basis for drawing inferences as those from random sampling, convenience samples have been a popular method used by researchers involved with preference surveys [11;18]. It was determined that a convenience sample would be the method used for the BRP survey and that a fairly large sample size—approximately 200 respondents—would be aimed for.

Survey Purpose

The purpose of the survey was to collect information directly from a sample of the population. The survey would test the hypothesis that the public response to BRP at the end of the 20th century reflects Hogarth's and Burke's predictions based on their principles of design. Stage I revealed that the concept of the serpentine "Line of Grace", variety, motion and emotion were important principles derived from Hogarth's and Burke's theories. Investigation of the BRP archives, and on site observation, indicated that some of these principles were intended for the design of the BRP, (i.e., variety and motion). See Chapter 5 for a discussion of the BRP design.

A subset of questions was derived from the findings of Stage I :

- Is the BRP an embodiment of Hogarth's "Line of Grace" and is its landscape design based on his, (and Burke's) principle of variety? Hogarth said that compositions based on this canon would be beautiful.
- Does the public perceive the BRP motor road and designed landscape as beautiful?

- If so, is this beauty associated with the “Line of Grace” and “delightful” variety?
- Burke claimed that gentle oscillatory motion is calming and predisposes one to consider one’s surroundings beautiful. Does public experience of the BRP reflect this concept?
- Burke also claimed that powerful emotions are evoked by landscape scenery. Are these emotions associated with the scenery of the BRP? What are the terms used by the 20th century public to describe these emotions?

These questions helped direct the development of the questionnaire.

4.3.1 Pilot Survey

Design of the Pilot Survey

It was determined that a pilot survey should be carried out as a means of testing the instrument and the questionnaire. The survey instrument could be assessed as to whether it was the best or most appropriate means of gathering information related to the hypothesis. Concerns related to wording and clarity of questions and fullness of response could be assessed from the pilot survey. It would then be possible to alter either the instrument or questionnaire, or both.

Methods considered

Traditional assessment methods based on rating photographs [11;13] were rejected as not providing an adequate picture of the totality of the driving experience. In order to best understand public experience of the BRP, a researcher would need to accompany motorists on their journey [12;19]. However, this technique is time consuming and expensive. It would require that research assistants accompany motorists in their vehicles, or that vans be hired in which groups of respondents are asked to travel with the researcher. Another option was to simulate the driving experience as closely as possible and present that to respondents for their reactions. Although the simulation does not present the full kinaesthetic, audio and olfactory aspects of the driving experience, it does present a reasonable facsimile of the visual aspect.

After considering the options, it was decided to use a simulation of the driving experience as the instrument for a pilot survey. A videotape of a section of the parkway was filmed on a digital camera then made into a videocassette. The digital video camera was positioned at eye level, between the driver and front seats of a standard automobile, (Volkswagen Passat '99). The automobile was travelling south on the BRP at design speed—50 miles per hour.

Sample Population and Instrument

The pilot survey was carried out on April 30, 2002. This survey was given to 42 North Carolina State University students. The students of Landscape Architecture 221, "Environment and Behaviour" class were from diverse disciplines including: Parks, Tourism and Recreation, Forestry, Civil Engineering, Landscape Architecture, Business, History, Architecture. The students were shown a four-minute video of the BRP filmed on October 7, 2001 when foliage was still on the trees but had changed colour. The video shown was of the road and landscape from milepost 152 to milepost 155, Smart View Picnic Area, Virginia. This section of the BRP, known as 1Q, was selected for its diverse yet modest landscape character. Spectacular mountain views, views of water and masses of flowering shrubs are absent. Instead, the views shown on the videotape included: rolling hills, farmland, fences, and some distant views of small mountains. It was thought that the modest landscape type was more typical of the BRP's "quieter" visual episodes and would elicit a different type of concentration and response than more dramatic scenery.

Questionnaire Design

The pilot survey questionnaire was meant to elicit the viewer's response to the BRP landscape/motoring experience. Its intent was to find out how viewers perceive the road and landscape as related to Hogarth's and Burke's principles. Was the principle of variety apparent and if so, how was it perceived by the respondents? What feelings were associated with the BRP experience? How were different design elements, such as road width, trees and different landscape scenes rated? It was determined that a Likert scale, a widely used social science survey scale, would be an

appropriate rating measure for most questions. The Likert scale is useful for getting an understanding of people's opinions or feelings. It allows respondents to indicate their reactions to a statement by choosing from a continuum of answers, which range from low to high, (i.e., strongly disagree to strongly agree).

The questionnaire was relatively short, (14 questions). It was simple in format, with mainly multiple choice questions on a single sheet of paper. Questions 1 – 12 were multiple choice using a 5-point Likert scale, with 1 being the lowest rating and 5 the highest. Questions 13 and 14 were open-ended, where the respondents were asked to provide their own word(s) to describe some aspect of their experience. (See Appendix Two – Pilot Survey)

Other than the viewer's previous visits to the BRP, the pilot survey did not include demographic or user context questions. Perceptual qualities related to speed, landscape variety, road width and overall feeling of travelling the BRP, were addressed.

4.3.2 Public Survey

Survey Method and Venue

Several instruments and locations were considered for the public survey:

1. Conduct it on a mixed sample of the public, (not only students) at an off-site venue, such as Raleigh, NC, using a videotaped motoring sequence of the BRP.
2. Conduct it at the Smart View Picnic area and overlook, asking respondents to direct their responses to their own motoring experiences for the Smart View section only.
3. Conduct it at a popular BRP rest area in order to obtain a larger number of responses, using a videotaped motoring sequence of the BRP.
4. Conduct it at a popular BRP rest area asking respondents to reflect on their personal BRP motoring experience along the road they had just travelled.

The first option was rejected due to its reliance on indirect experience, (watching the videotape). The second option was rejected due to the perceived difficulty of obtaining enough respondents at the overlook and picnic area. The BRP has a

wide dispersal of traffic and 275 overlooks. In order to obtain adequate response rate, it would be necessary to be located at several overlooks. Staffing and administration for such an undertaking would be difficult. In addition, it was thought that it might be difficult to get potential respondents to linger long enough at overlooks to fill out the questionnaire.

The third option would have a large number of respondents and a controlled experiment. This was rejected due to the limitations of the videotape, (mentioned above). The fourth option was selected for potential respondent number and reliance on direct experience. The negative aspect of doing the survey on site was that conditions were not as controlled as with the pilot survey. For example, respondents could be travelling in either direction on the parkway, and they may have travelled different distances. This meant that respondents were experiencing different sections of road, from different perspectives, (going north or south). On the other hand, doing the survey on site meant the motoring experience was fresh and immediate.

The survey was conducted at Mabry Mill, Virginia, (milepost 176.1) a major rest area with restaurant, gift shop, rest rooms, historic grist mill and interpretative exhibits. Mabry Mill was recommended by Director of Planning of the National Park Service-Blue Ridge Parkway, Gary W. Johnson, for its high visitation. Johnson suggested that we use the site to achieve a high response rate without “unduly bothering the public”. The National Park Service is concerned that the public enjoy the National Parks without any type of real or perceived harassment. Johnson wrote a letter granting permission to use the site for this survey.

Design of the Questionnaire

The objectives of survey questionnaire were:

- To identify perceptual responses and preferences related to the structure of the road, (Hogarth’s “Line of Grace”)
- To identify perceptual responses and preferences related to variety of landscape scenery, (Hogarth’s and Burke’s principle of Variety)
- To identify emotional responses related to the BRP motoring experience, (Burke’s notion that motion and scenery have emotional effects)

Section 8.4 explains how the questionnaire from the pilot survey was developed and refined in order to produce the final version for use in the main survey.

The questionnaire was three pages long made up of 33 questions. (see in Appendix Two) It was designed to take about eight minutes to complete. The questionnaire was copied onto two, (one front and back) stapled pages and attached to a clipboard. Most questions were multiple choice, using an attitudinal scale. Some multiple choice questions offered three options. There were eight open-ended questions and one question required circling words.

The questionnaire was divided into two sections:

- Demographic questions (first page)
- Experiential questions (second and third pages)

Demographic Questions

The demographic questions were straightforward. Questions related to gender, age, purpose of visit, previous visits to the BRP, vehicle, the respondent's position in the vehicle, residency and occupation were asked. Most of these questions were multiple choice. Three of the demographic questions: residency, occupation and number of miles driven were open-ended. Two experiential questions were located on the first page, immediately following the demographic section. These were fill-in-the-blank format.

Experiential Questions

The experiential section asked questions related to themes associated with Hogarth and Burke. For example: the theme of the 'Line of Grace' was referenced in Q16 – 20 (see Appendix Two) related to road curves, horizontal alignment and vertical gradient. The theme of variety was referenced in Q15 and Q27. Motion was referenced in Q19 and Q20.

Some questions were developed using words associated with theorists Hogarth and Burke. For example, the words delightful and pleasant were used in some of the multiple choice questions to describe different points on the Likert scale. In the final question of the survey, the respondent was asked to circle up to five words to "best describe the BRP" (BRP Survey p 3, Appendix Two). The list of words included many from Hogarth's and Burke's texts such as: "beautiful",

“graceful”, “sublime”, “delightful”, “gentle”, “pleasing”, “rough”, “unpleasant”, “mysterious”.

Survey Administration

I conducted the survey with two student assistants: Vasilia Ganiaris and Anna Revington. The survey area was set up in the grist mill and interpretative part of the site, an area with high visibility but out of the way of the restaurant traffic so as not to hinder the running of the facility operations. Portable chairs were put out in an area of shaded lawn so that persons filling out the questionnaire could sit down if they were tired. A poster was set up on an easel which alerted potential respondents to: ” Tell us how you feel about driving the Blue Ridge Parkway”

All persons entering the site were asked if they would be willing to fill out a questionnaire. They were advised that the survey normally took about 8 minutes to complete. Persons who agreed to fill out the questionnaire were given clipboards and a pen. They were not communicated with unless they had a specific question. The approach was successful in its efficiency. Three people were able to obtain 199 responses in two days. There was a fairly steady stream of people onto the site which allowed the researchers to deal with small groups and ensure that all of the questionnaires were returned. A possible bias in the sampling may have been introduced by participants being self-selecting, e.g. only those who had had a positive experience may have felt prepared to participate, but this limitation had to be accepted as enforced participation was neither ethically advisable nor possible in practice.

Three days, (June 21,22,23 2002) were allowed to obtain the goal of 200 responses. The goal was reached in two days. It was later found that one of the returned questionnaires was blank making the total number of responses 199. The survey was conducted from 9:30 am until 5:30 p.m. on June 21 and June 22, 2002. Both days were dry and sunny. Temperatures were in the 75°F - 80°F each day.

4.4 Summary

In summary, qualitative and quantitative methods were combined in an effort to explore the hypothesis from different angles. Data were collected from different procedures: from primary archival resources; secondary literature resources; elite

interviews and sample surveys. The data gathering began with secondary source collection. The literature was sifted and analysed. The nature of the design topic, and the dearth of information on road aesthetics meant that broad subject areas, such as early road design, optics, planting design and the technical aspects of spiral curve needed to be reviewed. This information was sifted and led to investigation of primary BRP design sources. It was then determined that further information was necessary to explore the hypotheses resulting in conducting elite interviews and by investigating the education and training background of the primary designer(s). Based upon the findings of Stage I, qualitative research, a survey was developed and carried out in Stage II. This provided another source of data upon which to base conclusions about the relationship of the 18th century theories of Hogarth and Burke to the design of the BRP.

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CHAPTER 5 - BACKGROUND OF THE BLUE RIDGE PARKWAY

5.1 Introduction

The literature review indicated that a more detailed investigation of the BRP background was necessary to find out if Hogarth's and Burke's theories are manifest in its design. I undertook archival research of the design drawings and specifications to learn more about the design intentions. I also investigated annual reports, letters and other memoranda to see what the designers were writing about the design.

This investigation focuses on the parkway design done during the early phase (mid 1930's), as this was the era when the foundations of the design approach were laid. Later design was not markedly different from earlier phases. Gary W. Johnson, Director of Planning for the BRP suggested that I use Development Plans from Section 1Q, Pine Spur to Smart View, Virginia as a basis for detailed study of the road's relationship with the landscape. This section was one of the most completely documented of all the BRP sections and provided a basis for examining whether current conditions reflect original design intentions. I made three trips to this section with plans in hand, to study the design making notes related to changes, and found that, with very little exception, the design for that section was as drawn by the landscape architects in 1936 -37. Although this is only one eleven-mile section of the 469-mile parkway, it would seem to indicate that the design principles as drawn, were essentially adhered to in the construction and reflected in the decades of maintenance since. Lester Wood, foreman for the 1Q section, was interviewed and indicated that when questions about maintenance arise, the plans are referred to resolve such questions [1].

5.2 Definition and Functions of the BRP

The Blue Ridge Parkway, (1934-1987), is a unit of the United States National Park Service, (NPS) which defines a parkway as: “ (An) elongated park featuring a road designed for pleasure travel and embracing scenic, recreational or historic features” [2]. The Blue Ridge Parkway connects Great Smokies National Park, Tennessee and North Carolina with Shenandoah National Park, Virginia. The \$16 million project began in the Depression as a means of boosting the economy of the Appalachian Mountains. The BRP is narrow, averaging 1,000' right of way and, at 469 miles, it is the USA's longest federal

parkway. The parkway contains a motor road which is a 20' wide, two-lane bituminous concrete road [3]. The motor road and associated landscape were designed in tandem.

At the outset of the BRP project, the National Park Service developed a list of functions for the parkway. Those most pertinent to this investigation are:

- To provide a through scenic and recreational route between the Shenandoah and Great Smoky Mountains National Parks.
- To make available scenic beauty and recreational facilities for those who live near enough to make a day or weekend trip along the parkway or to its parks.
- To reveal all the scenic grandeur of the "Eastern Divide" with the highest mountains east of the Rockies [4].

The second goal reflects the larger purpose of all US National Parks – that of providing access to scenic beauty and recreation. The word scenic appears in all three functions and indicates the priority placed on landscape scenery.

5.3 Agency responsibilities

The BRP design was shaped primarily by landscape architects of the National Park Service and their contributions are the main focus of this investigation. The National Park Service was responsible for the design and construction of the parkway. The Bureau of Public Road, (BPR) assisted with location, detailing and construction of the motor road. NPS landscape architects worked with BPR civil engineers on the road design issues. Jointly, they determined location. The landscape architects developed preliminary road grading and alignment plans which were finalized by the engineers. The Civilian Conservation Corps, (CCC) helped to construct the parkway until the early 1940's. During both the early and later period, private contractors were used for construction including plant installation, bridge and tunnel construction, paving and masonry work.

5.4 Designers

Stanley Abbott, (1933-48) was first Resident Landscape Architect, (1933-37) then Superintendent (1937-42). After serving in the army during World War II, Abbott returned to the BRP as Resident Landscape Architect (1944-48) then moved up in the National Park Service to other jobs including Superintendent of Colonial National Park, Williamsburg, Virginia. It is agreed by experts, [5, 6, 7, 8] that Abbott established the design vision for the parkway.

Edward Abbuehl, (1934—57) was an architect and Abbott's teacher at Cornell University. Abbuehl was the first person Abbott hired. "Though he was an architect by training, I knew the broad nature of his thinking and reasoned: 'Now here is the ideal man...'" [9]. Abbuehl was landscape architect in charge of the North Carolina section of the parkway until 1948 when he was made Resident Landscape Architect (1948 – 57).

Hendrick van Gelder was the third person Abbott hired. He knew him from working with him in the Westchester, (New York) County Park System. Van Gelder was the landscape architect in charge of the Virginia section. (dates of employment unknown)

Malcolm Bird came to the parkway in 1937 from Great Smokies NP. He was known for his expertise in plants [10]. Bird began the Landscape Development Plans which describe the intentions for the landscape design. Bird remained just a few years at the BRP, (dates unknown), then was transferred within the NPS.

Ted Pease, (1938-74), was one of several junior landscape architects who came to work on the parkway in the early days. His responsibilities included field work and design for the North Carolina sections of the parkway.

William Hooper, (1945-75), was not a landscape architect but is included in the design personnel because he was responsible for the farm scenery adjacent to the BRP. Hooper was an agronomist and later the BRP Land Management Specialist in charge of land acquisition and easements. This involved about 3,200 acres of land which were leased to adjoining landowners for agricultural purposes [11]. Hooper worked for the Soil Conservation Service prior to joining the NPS.

Robert Hope, (1956-58) (1963-2000) worked first as a junior landscape architect on the parkway, then worked for the Eastern Regional Division of the National Park Service. In 1963 he returned to the BRP and became Resident Landscape Architect.

5..5 Design Process and Concepts

5.5.1 Location Concerns

The first concern of the designers was the overall location or route. The termini, (Great Smokes NP, TN and NC and Shenandoah NP, VA), were known but the route between the national parks was not set. The parkway might go through North Carolina or Tennessee, or both. It had to pass through Virginia in order to reach Shenandoah NP. Abbott engaged in field reconnaissance for several months prior to issuing his recommendations on location. His report studied three potential routes for parkway: 1) the route lying wholly in Virginia and North Carolina 2) a route lying wholly in Virginia and Tennessee 3) a route lying in Virginia, North Carolina and Tennessee. (Figure 26) It is interesting to note Abbott's preference for a route with scenic variety, even in the earliest stages of design. His findings, based on five months of field study, recommended the third route for its "variety of scenery, reasonable construction costs and good direction" [12]. Higher-ranking administrators of the National Park Service, including Arno Cammerer, Director of the National Park Service, supported Abbott's recommendation. But U.S. Secretary of the Interior Harold Ickes decided in favour of the North Carolina-Virginia location, probably due to effective political lobbying by North Carolina [13]. See 2.2.3 for discussion of the influence of politics upon the BRP location.



Figure 26 – “Shenandoah – Great Smoky Mountains National Parkway” Proposed routes between Great Smokies NP, TN and VA and Shenandoah NP, VA. The red line is the route preferred by Abbott and his NPS superiors for the variety of scenery. Most of the red line was built. However, the yellow line at the bottom left became the southern access into Great Smoky Mountains NP (1934, BRP Archives). Map coloured by Mary Myers.

Two states, twenty-nine counties, numerous local communities and private landowners were affected by and deeply interested in the routing of the parkway [14]. The U.S. National Forest Service was involved as the parkway was routed through miles of NFS land. In the early years of the parkway, the Soil Conservation Service was also involved because it was working with Appalachian farmers whose properties abutted the parkway.

5.5.2 Section Considerations

Once the location of the overall route was decided, the project was broken down into smaller parts. The motor road was designed and built in approximately ten-mile sections. Normally the sections were situated between gaps. The gaps were the places most accessible for pre- parkway settlement. This meant the existing roads could serve as a means of transporting BRP equipment and crews. Between gaps lay many different types of terrain with multiple options for location.

Abbott describes the importance of variety of natural settings in placing the motor road:

“We (the landscape architects) and the engineers together just drilled and drilled, all of us, on the business of following a mountain stream for a while, then climbing up on the slope of a hill pasture, then dipping down into the open bottomlands and back into the woodlands” [15].

The BPR engineers, in consultation with the landscape architects, established the preliminary lines for the location of each ten-mile section. Up to three alternatives were staked per section. According to Ted Pease and others, the civil engineers were made to understand the scenic priorities of the parkway by Stanley Abbott. But Pease states that the engineers would often want to “take the easiest, cheapest way” [16]. BRP landscape architect van Gelder wrote in a memo: “The engineers have a tendency to regard the line as a series of tangents, connected by curves no longer than necessary. This tends to result in a hard line with abrupt curves. The landscape architect would rather consider a parkway alignment as one continuous flowing curve...”[17]. As scenery was identified as a primary function of the BRP, the landscape architects were ultimately responsible for the entire composition of road and landscape. Thus, for variety’s sake, the BRP includes pastoral scenery, as well as dramatic cliff like scenery, including road alignment decisions that were difficult (and expensive) to accomplish: “There’s a long inside curve just this side of Doughton Park. And it was a vertical cliff there, is about all it was. But it made a

kind of feather. And that's where the parkway is. But they had to shoot it out, just a notch out of the solid rock around that inside curve" [16]. The landscape architects made the final selection of the route and drew Development Plans showing preliminary intentions for the roadway and associated scenery. These plans, done on plane tables in the field, included grading of the motor road [18]. The Development Plans were then taken by the engineers and made into construction documents. After the road was rough graded, the landscape architects returned to the site to draw up the Planned Land Use Maps, indicating all of the detailed design intentions for a particular section. The Planned Land Use Maps, (PLUMS) are used today in managing the landscape. For example, they are referred to for questions regarding mowing patterns or view clearing [19].

5.5.3 Parkway right of way

Following established parkway precedent, the original right of way for the BRP was to have been 250 feet wide [20]. Based on Abbott's recommendation this was widened to approximately 1,000 feet. "(The) right-of-way is approximately 825 feet wide in fee simple and an additional 400 feet in scenic easement" [21]. The scenic easements were purchased by the NPS from adjacent owners who retained most of their rights of ownership and "sold only their minor rights; that is (they) agreed not to spoil the land." [22] According to Abbott scenic easements were difficult to explain to the local "Scotch Irish" farmers and were used only on the early sections of parkway [22]. Land leasing was viewed as more successful in terms of results and administration. Farmers who were neighbours to the parkway would be asked if they would like to farm some of the parkway land. This "meant the eradication, aesthetically, of that artificial line...and brought the cow, or the winter wheat, or the corn up to the fence at the edge of the road" [23]. The specifications for the BRP also called for the elimination of the boundary: "To eliminate the feeling of restricted right-of-way, fences between the Parkway and adjacent land will often be eliminated and the natural form of the field restored" [24]. Fences were later used to complement the land form, not articulate the legal boundaries between the parkway and adjacent properties. (see below – Farm Scenery)

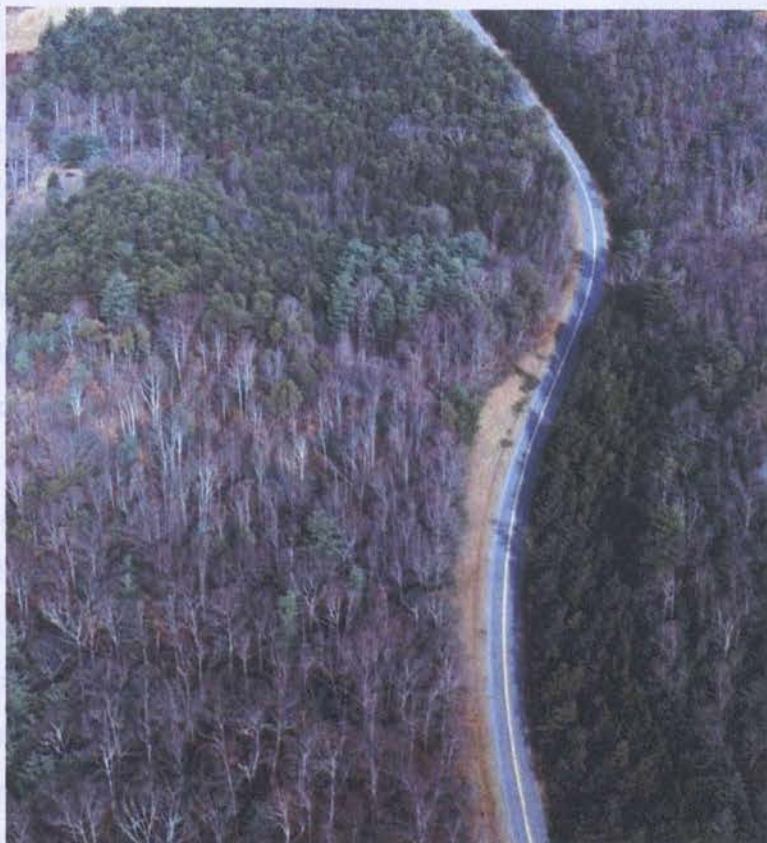


Figure 27 -- Aerial view of the BRP through a wooded section of NC. Note grassy bay flaring out on lower left and reverse curves which aim the motorist at different views. Photo Jay Tomlinson, NC State University 1997

5.5.4 Concept of a serial landscape

The public would experience the landscape via the automobile. Abbott thought of the speed of the auto as comparable to the rapidity of the frames of film and wanted to develop the motor road landscape from that perspective:

“The parkway motor road is the means...by which the varied and countless scenes composing the Blue Ridge picture are unfolded, or as it were, projected to the visitor ” [25].

The spiral curves of the motor road would aim and focus the viewer on landscape scenes which the viewer would then pass through, led forward as it were by the designer, to the next scene.

5.5.5 Spiral Curves and the Structure of the BRP Motor Road

Abbott [9] identified the opportunities afforded by spiral curves to provide a positive visual connection with the landscape. Simonson [26] Connolly [27] also identified the need to develop a positive relationship between road and landscape. BRP designers built on earlier and concurrent parkway design objectives [26, 28] in determining that the motor road should be comfortable and safe to drive allowing the motorist to direct attention to the landscape. There would be limited access, (controlled entry and exit points), making for less concentration on the activity of the road itself.

“The road is designed for 50 miles per hour speed. The preferred maximum grade is 6% with an absolute maximum of 8% for a quarter mile or less. A 500-foot minimum radius of curvature is standard, with an absolute minimum of 200 feet radius for outside curves and 150 feet radius for inside curves. All curves are widened and super elevated. (Figure 28) The transition from tangent into a curve is by spiral, or gradual increase of curvature, until the desired radius of curvature is achieved” [29].



Figure 28 - Super elevation on the outside of a spiral curve counteracts centrifugal force. The use of fluid curvature allowed for snaking the road around promontories and the salvaging of tree stands. Photo by Mary Myers, 2001

From Lord’s description one gets the idea that the road is a predictable form. Vertical and horizontal gradient are limited for ease of driving. Abbuehl [5] added that all curves over $1^{\circ}30'$ were transitioned by spirals. Achieving the relatively gentle gradient of 3 – 6% may not have been easy in the Appalachian Mountains. “The motor road has a 5,400 foot difference in elevation overall with James River, VA., mile 63, elevation 650’ as its

lowest point and Richland Balsam, mile 431, elevation 6,050’ as its highest point “[30]. However, the engineers and landscape architects considered a gentle vertical gradient, like spiral curves, essential to a comfortable driving experience.

Along with the gentle gradient, the Blue Ridge Parkway, has many linked spirals. The arrangement of the curves in opposing directions, called reverse spirals, lends itself to comparison with Hogarth’s “Line of Grace” [31]. (Figure 15)

- Background of Spiral Curves

Spiral curves, also called transition or easement curves, ease the transition from a straight section of road into a standard curve and relieve centrifugal force. Spirals were first documented in the late 1600’s in “Sino Loria”, a treatise by Jas. Bernouilli. They were rediscovered in 1874 by Cornu for use in optics. Shortly after, (sometime in the 1880’s), spirals began to replace parabolic curves in easing transition in railroads [32]. It is commonly accepted that parkway designers appropriated the spiral curve from railroads [33].

Spiral curves provide a transition or easement between a simple curve with a specific radius and tangent (whose radius is infinity). (Figure 29) The “rate of curvature gradually increases from nothing to the rate of the central part of the (simple) curve” [34].

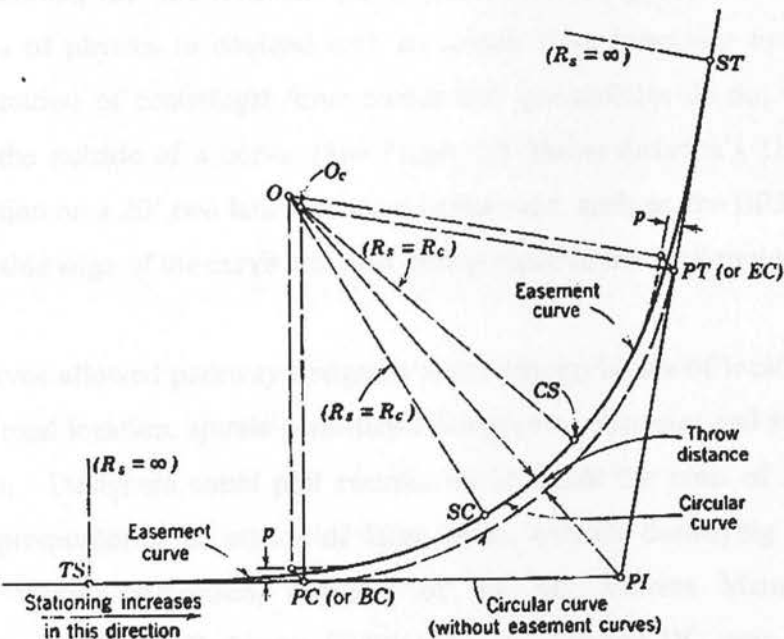


FIG. 9-11 A circular curve, with and without easement curves

Figure 29 - Diagram showing Spiral (identified as Easement) curve connecting a standard circular curve with a tangent. (Oglesby and Hewes, p 269)

The radius and sharpness of a spiral curve increase and decrease respectively at a uniform rate along its length. The length and degree of curvature are based on anticipated speed of traffic and the sharpness of the circular curve that the spiral must meet.

“For example, for 70 miles per hour (113 kilometres per hour), a spiral of 400 feet (122 meters) is needed to connect a 4 degree circular curve with a tangent. The sharpness of the spiral will increase 1 degree for each 100 feet. At 100 feet along the spiral, it will have the same radius as a 1 degree curve; at 200 feet, its radius is that of a 2 degree curve; at 400 feet, both spiral and circular curve have the same radius and 4 degrees of sharpness” [34]. If one were designing to meet a four degree circular curve for slower speed, such as that of the BRP, the length of the spiral would be less, and its degree of sharpness greater. The authors of railroad engineering manuals and engineers in highway departments developed tables of design standards to facilitate the application of spiral curves.

Spiral curves were originally developed to allow railroad cars to proceed into a standard curve without derailing. Combined with super-elevation, or raising, of the outer edge of the road, spiral curves help to counteract centrifugal force.

The automobile, like the railroad car, is a mass travelling at high velocity and has the same laws of physics to contend with so spirals were important for driving safety. A shorter duration of centrifugal force means that automobiles do not weave out of their lanes on the outside of a curve. (See Figure 29 ‘throw distance’) This is an important consideration on a 20’ two lane mountain motor road, such as, the BRP. Super elevation, of the outside edge of the curve was also incorporated in the BRP motor road design.

Spiral curves allowed parkway designers flexibility on issues of location and alignment. As in railroad location, spirals permitted avoidance of obstacles and subtle adjustment to the terrain. Designers could plot courses which made the most of landscape features, such as promontories or stands of large trees, without destroying them. Landscape architect Wilbur Simonson, designer of the Mt. Vernon Memorial and George Washington Memorial Parkways in suburban Washington DC, was one of the first to exploit and advance the use of the spiral curve.

“The alignment, (of the Mt. Vernon Memorial Parkway) except through the city of Alexandria, consists almost entirely of continuous easy curvature established so as to create the effect of following the topography of the country...All curves were spiralled to give easy flow lines for traffic and to add to the appearance of the road” [35].

Spiral curves are associated with a sense of comfort because abrupt connections between tangent and simple curves are absent. On the BRP linked spirals aim the car at different views.

On some spiral curves the driver is unable to see where the road terminates because it is obscured as it curves around promontories or vegetation. (Figure 30) This creates a sense of mystery in the “suggestion that there is more to see” [36].

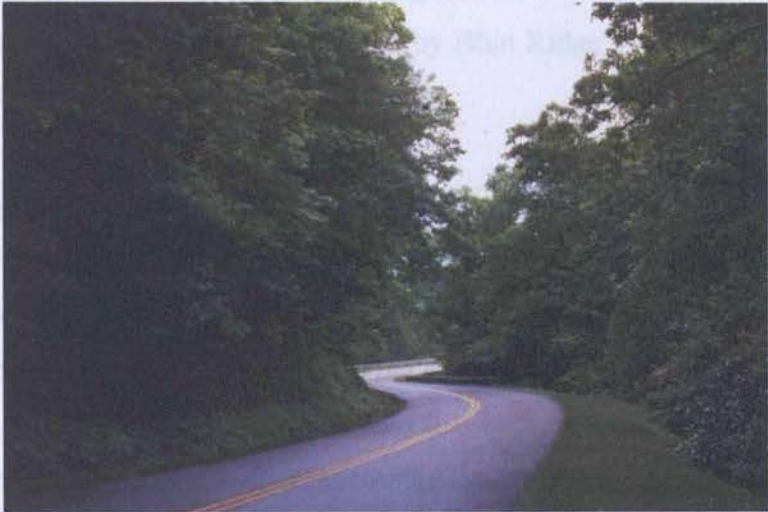


Figure 30 - Reverse spiral curves on the BRP. Note how the road is obscured as it curves around vegetation which affords a sense of mystery. Photo by Mary Myers

which has been identified as one of the key factors in landscape preference [36]. Hogarth identified winding walks and rivers as forms which give enjoyment or are highly favoured : “The eye hath this sort of enjoyment in winding walks, and serpentine rivers, and all sorts of objects, whose forms, as we shall see hereafter, are composed principally of what I call the *waving* and *serpentine* lines” [37].

Reverse spirals were introduced by Simonson and others to produce an easy rhythmic flow to the driving which required a certain amount of concentration—but no tension *unless one goes appreciably over the speed limit* [18]. The reverse spirals and

accompanying super elevation control speed to a greater degree than standard highways. They are designed and engineered very precisely for a set speed. On the Blue Ridge Parkway, that speed is 50 mph, (official speed limit is 45 mph). Unlike standard highways, if one drives ten or fifteen miles above the speed limit on the parkway, there is a distinct sense of danger and lack of control [38]. More research needs to be carried out concerning the role of reverse spirals in controlling speed. However, it would appear that on the Blue Ridge Parkway, and other parkways which have not been altered or “modernized”, there is little need for repetitive speed related signage. The driver can sense that s/he is going too fast to take the curve properly and adjust to a more comfortable speed.

In the design of the Blue Ridge Parkway, tangents are not altogether avoided but spiral curves are preferred [9]. Spiral curves are used to ease transitions from one curve direction to another. Understanding of and agreement with the Mount Vernon Memorial Highway standard of alignment is indicated by Blue Ridge Parkway landscape architect H.E. van Gelder’:

“In designing alignment, it was noted that the engineers have a tendency to regard the line as a series of tangents, connected by curves no longer than necessary. This tends to result in a hard line with abrupt curves. The landscape architect would rather consider a parkway alignment as one continuous flowing curve...” [17].

The engineers seemed to want to break apart the problem into pieces and then try to connect the parts. The landscape architectural approach was more unified, perceiving the connectedness of the road sections with each other and with the landscape.

5.5.6 Landscape associated with motor road

Although the boundaries of the 1,000’ BRP right of way were roughly parallel to the road, the edge between parkway owned land and neighbouring land was blurred by planting it out, or opening up vistas into adjacent landscapes. Echoing Repton’s [39] statement about the parts of the picture that are within purview of the designer, Stanley Abbott wrote:

“The line of federal ownership, however important, is arbitrary. It simply affords control over the immediate foreground of a far-flung picture. An appreciation of

this fact is indeed the very foundation upon which the Parkway's design policies have been built. Because of it the roadway becomes the narrator of the whole story of the mountains" [40].

Pains were taken to obscure the boundary line and direct the visitor's attention to views that the landscape architect considered important. These might be distant views of the mountain ranges, middle views of farm or forest, or close up views of plant masses, such as flowering shrubs. (Figure 31) Some views might be lengthened by clearing or mowing. Other views might be framed. In general, all were irregular in form without sharp edges.

Along miles of ridge top, where distant scenes were prevalent, the road alternated from one side of the mountain to the other. This opened up views to the west, as well as the east, and offered different solar and microclimate exposures.

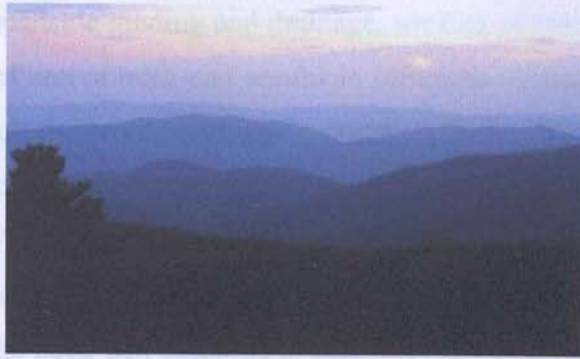


Figure 31 – Views from the BRP road. Top – Mountain Vista, NC. Middle – Closed View with rhododendron shrubs both sides of BRP road. Bottom – Farm, Virginia section south of Section 1Q. Photos by Mary Myers, 2000-01.

5.5.7 Planting Design

The first objective of the planting design was to heal the scar caused by construction. The BRP motor road was one of the first to have rounded shoulders which merge the road with existing topography. To further tie the road to the setting, the shoulder was then

planted with species native to the immediate neighbourhood; often gathered in the parkway locale.

“A judicious roadside grading and drainage, seeding of raw soils in native grasses, and planting of native trees and shrubs in imitation of nature is inseparable from the sense which the word ‘parkway’ conveys. Such a development policy is not to be confused with the botanical embellishment of some suburban parkways, but is a matter of soil and moisture and scenery conservation. Likewise, because of the limited width of right of way and the community of this parkway with its countryside, the need will continue to maintain those grassed areas and shrub bays which are the seemingly natural transition from pavement to field and forest” [41].



Figure 32 Holes dug for plants on Section 1Q, Smart View Area. Looking north. Note repetition of Pine species seen in the background. BRP Archives.

Landscape architect Ted Pease took his cues for planting the road cuts from the surrounding landscape:

“What you would do usually, if it was on a cut slope you’d look at what was up above there. Mostly, with shrubbery...if it was mostly laurel we’d use laurel there. If it was pink rhododendron, we’d use that...”[42]. (Figure 32)

The harsh line at the top of a cut would be broken, first by rounding it by grading and then by planting it out, thinning the plants as you came down the slope. Thinning was done for reasons of economy. It just wasn't feasible to obtain enough plants by gathering, or commercial purchase, to create thick masses. Nor was it desirable in the southeastern Appalachian Mountains where the plants grow quickly. Instead the plants would be massed to hide the line of cut or fill, then feathered out to merge with the grass verge or shoulder at the edge of the paved road. (Figure 33) Paved shoulders were considered unnecessary due to the design speed of the road. The shoulders were planted with varieties of grasses [43].

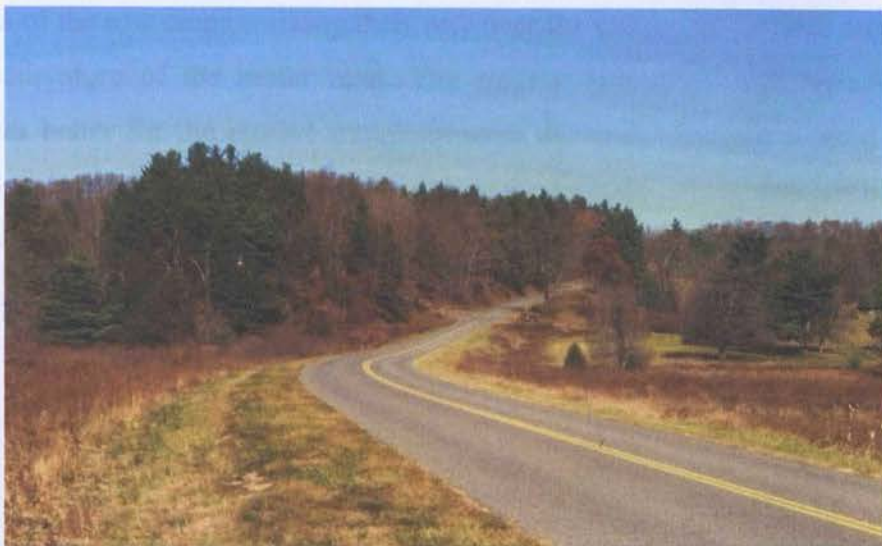


Figure 33 Section 1Q, Smart View, VA, 2001. Approximately the same area as preceding figure, looking south toward the planted bank with large White Pine species. Photo by Mary Myers

5.5.8 Farm scenery

William Hooper, agronomist and land management specialist for the BRP, described the Blue Ridge Parkway as “window to the countryside”. He travelled the parkway with Stanley Abbott when he first came to work in 1945. While he was not trained as a landscape architect, he developed a feeling for Abbott’s design approach. As land management specialist, he developed the leasing program and worked with the leasers to develop the agricultural scenery. He staked out contour lines for row cropping, arranged fences and determined mow lines. Like the landscape architects, he sometimes had to argue with the engineers over things like uniform setbacks for fencing. “The engineers

would like to have (the fence) just a certain distance set back so they could mow it but *you* know what that would look like”[44]! (Figure 34)

Schmidt [45] says that one of the most important factors of geometrical perspective is: “Nearer objects appear below the eye level, and distant objects at or above eye level” [46]. This factor may have been an unconscious influence on the way fences were located in the landscape. Hooper located fences above the road below the ridgeline. Fences on cut slopes near the road were located below eye level.

Hooper staked out lines with the farmers in order to keep the cultivation on the contour. The curves of the row crops working their way over the rolling countryside complimented the fluid curvature of the motor road. The contour and strip cropping advocated by Hooper was better for the erosive mountain soils. Hooper, who had worked previously with the Soil Conservation Service, also advised the farmers to lime and fertilize the soils to improve crop yield. Improved farming practices resulted in better production, less soil erosion and an attractive roadside picture.



Figure 34: Roadside View, VA. Photographed by the author. Notice the location of the fence. Photo May 1970.

However's work in the early days of the parkway was well-documented in regarding the One of the significant changes the BRP brought to the agricultural scene was the introduction of more livestock.

“You’d be surprised looking at it now but those people on those hillsides were trying to make a living with corn, potatoes and row crops which was just the worst use of the land that they could possibly be engaged in. So what we tried to encourage all the time... was to get them more into grassland farming, cattle and grassland” [47].



Figure 34 - BRP near Smart View, VA. Row crops on left and pasture land on right. Notice the curving pattern of the fence. Photo Mary Myers

Figure 35 - Section 1Q, VA, Payne Creek Area, Date Unknown. The BRP curves through a rural area of Virginia farmland. BRP Archives.

3.3.2 Woodland ecology

The Great Smoky Mountains have a greater variety of plant species than anywhere else in the world [49]. In its northern reaches, in the mountains of western North Carolina, the BRP travels through areas of the Great Smoky Mountains National Park that are “spruce-fir forest of the Canadian life zone, in the highest elevations” [50]. In the lower elevations of

Hooper's work in the early days of the parkway was instrumental in managing the roadside scene and motor road experience. He understood how quickly the agricultural scene could be lost. His concern was that the mismanagement of the land might result in topsoil loss, requiring reforestation. He considered this unacceptable. "You don't want to let some farmer come out here and use the land in such a way that you lose that topsoil and eventually... have to plant back to trees. You've lost it. Any loss is something that you just don't want to tolerate" [48].

The agricultural scenery was highly valued by Abbott for its cultural history and for the variety it added to the parkway landscape. He considered the leasing program successful because it freed the parkway from boundary line:

"It is one of the things that give the Parkway character as you drive along—this freedom from the impression of a boundary line. It is a marriage to the country, to the farm or the woodland. The countryside becomes the handmaiden of the road"[13]. (Figure 35)



Figure 35 - Section 1Q, VA, Payne Creek Area, Date Unknown. The BRP curves through a rural area of Virginia farmland. BRP Archives.

5.5.9 Woodland scenery

The Great Smokey Mountains have a greater variety of plant species than anywhere else in the world [49]. In its southern reaches in the mountains of western North Carolina, the BRP travels through areas of the Great Smokies. There the motorist can see "spruce-fir forests of the Canadian life zone, in the higher elevations" [50]. In the lower elevations of

the same setting, are broadleaf evergreens, such as Southern Magnolia. As Abbuehl remarked, in areas of lush growth, it was often a matter of opening up views and trying to merge the road with its natural setting by planting out the scar:

“The rare combination of moisture, southern latitude, high altitude, and the acid soil makes for a plant growth that is not only interesting but most prolific. The problem is often one of trying to keep vistas and open fields cleared rather than to get plants to grow “[51].

The landscape architects were concerned that the miles where the parkway travels through dense forest, (it travels through three national forests), might be monotonous. They determined to clear portions of woods to emphasize shrubs with spectacular flower displays such as laurel, azalea, or rhododendron. Grassy bays flare out in places to include a specimen tree saved during construction. In other places, by contrast, under story growth was cleared to provide views into the woods.

Landscape ecology and overall health, maintenance and stewardship were concerns for the BRP landscape architects but they were not over-riding concerns. (Ecology had not yet surfaced as a dominant value for the National Park Service in the 1930's) Rather, the BRP design emphasised picturesque form without much concern for ecological implications.

The NPS worked out an arrangement with the NFS to selectively clear and carry out woods “Clean up” and vista clearing in the NFS sections, so that:

“The parkway visitor may first enjoy the woods and secondly not let the woods hide an attractive view or vista “ [52]. Sometimes the outlook of the landscape architects did not jibe with concerns of the NFS biologists. For example, in the early to mid-1930s the parkway scene included thousands of dead chestnut trees, victims of the Chestnut Blight that swept the eastern United States. The landscape architects considered the standing trees unsightly and began having them felled where they occurred on parkway land. The foresters explained that such trees were important to the forest ecosystem--that the detritus provided important moisture conservation for the ground and den habitat for animals. As a result of the foresters' concerns, landscape specifications were amended to leave several standing dead chestnut trees per acre within the parkway boundaries [53]. Today, the policy of the NPS is to leave all dead wood that is not directly endangering the motorist.

5.6 Design Documents

Documents, in the form of large plans, were drawn by the parkway designers to express and develop their ideas. The documents, along with specifications, were sufficiently accurate and complete to enable the BRP to be constructed in accordance with the design concepts.

5.6.1 Development Plans

During the 1930's, planting plans and schedules were developed for the BRP by Malcolm Bird and junior landscape architects. These Development Plans were later abandoned as they took a great deal of time to draw [42]. Subsequent planting design was then done in the field by the parkway landscape architects who directed the foremen and labourers. Landscape architects and crew foremen were responsible for being able to identify plants indigenous to the parkway in order that known native plants would be catalogued and used.

The Development Plan for Section 1Q indicates the emphasis on native plant palette. The specifications included long lists of plants with the width of the planting hole, range of sizes and minimum, average and widest spacing in feet designated. (See Appendix One)

5.6.2. Planned Land Use Maps

PLUMS illustrate complete design intentions for the parkway scene and are the final word on maintenance decisions. These drawings, done at a scale of 1" = 100', show the road in conjunction with its neighbourhood on and off the parkway. (See Figure 35) PLUMS illustrate view lines, property lines, edges of woodland, wetland, structures, streams, culverts, bridges, overhead wires, shrub and grass bays, rock outcroppings and show such things as areas of proposed regeneration or wildlife refuge. PLUMS were done in the field:

"I would park the car, walk one-quarter mile up road, then walk down on other side, then (walk) beyond car. I did about one-half mile or more on both sides of road per day drawn on the land use plan. I paced it off and scaled off on map. I drew a definite line where the views should begin and end. All of these details took time to figure out... We judged each foot of the parkway on foot, then would

drive over it to see if this ought to be done. When all of the fieldwork was done, I would do the final draft indoors” [54].

The reliance on site observation as the basis for judgment cannot be overstated when discussing the parkway design. The designer seems to have taken every opportunity to evaluate decisions *in situ* from various perspectives: i.e., heading north and heading south on the parkway road. (See Pease Telephone Interview, Appendix One). The PLUMS maps are crucial references for current and future landscape management. They indicate the evolution of the views over time, i.e. which lands will return to woods, which will revert to wetland, which should be maintained as hay field, pasture or crop land. Abbuehl [5] said: “Preparation of the PLUMS requires a lot of imagination and experience. An inexperienced man is apt to think of them as planting plans for small developments rather than for a roadside picture 500 miles long, and he goes into too much detail. The landscape design must be big, bold and sweeping to be effective for a visitor travelling at 45 miles an hour” [55]. The PLUMS maps indicate concern for the scenic experience of the current and future user, and how the roadside landscape will evolve to further settle into its ecological context. The landscape architects had to envision the future “pictures” motorist would see and ensure that the scale of those pictures continued to be in sync with the scale and speed of the road.

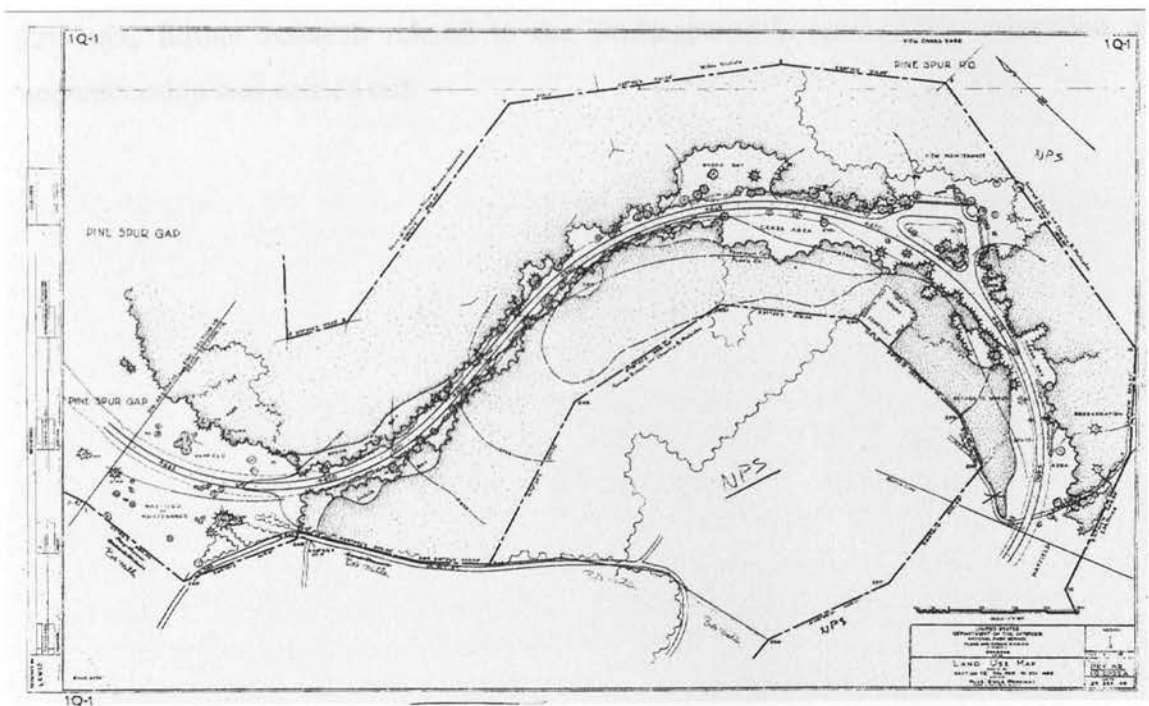


Figure 35 – PLUMS map for 1Q section shows large grassy bays at the apex of the curves, where the car is aimed. Lower left shows a larger clearing. Note that from the road, the legal boundaries are obscured by the asymmetrical woods line. BRP Archives.

5.7 Summary

Abbott's concept of a serial landscape was made possible by the use of the multiple reverse spiral curves. These curves aim the motorist at a variety of views, (farm, wood, mountain vista). The roadside scenery is designed to connect visually with scenery outside the BRP right of way through naturalistic planting. The blurring of the property boundaries is a principle advocated by Repton [39]. Repton argued that a requisite (among others) of perfect landscape gardening is "it should give the appearance of extent and freedom, by carefully disguising or hiding the boundary" [57].

The reverse spiral curves add mystery to the scenery as the motorist cannot see where the road terminates as it bends around topography or vegetation. Thus the "eye is led on a wanton chase" (Hogarth) and the mind is engaged in determining what lies beyond. The reverse spiral curves are the spine and governing structure of the BRP composition. The motorist sees the passing landscape from the road upon which his speed is controlled and views carefully directed. Thus it would appear that the design of curvilinear structure of the BRP motor road conforms to Hogarth's principle of the "serpentine line of grace" as a central organizing feature of design. However, it was still not known whether the designers consciously designed according to 18th century aesthetic principles. In order to find out, further research related to the landscape architects' design education and apprenticeship was carried out.

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CHAPTER 6 – LINKS BETWEEN THE 20TH CENTURY DESIGNERS AND 18TH CENTURY THEORY

6.1 Introduction

The first objective of this thesis is to determine whether the designers of the BRP consciously used 18th century theory in the parkway design, (notably Hogarth's serpentine "line of grace" and principle of variety and Burke's concept of smooth movement as related to perception of beauty). The original design documents reveal the use of spiral curves and gentle gradient to affect a smooth driving experience. They also indicate that a variety of landscape scenes were designed. However, the documents and memoranda did not indicate the conscious use of any formal design theory. Therefore it was necessary to engage in further research related to the education and professional training (through apprenticeship) of the designers.

The three primary designers were Abbott, Abbuehl and van Gelder. Abbott is credited with the design vision and having the final say on any design decision. Very little could be found on van Gelder's background. He may have been trained outside the USA. Abbott and Abbuehl were both educated at Cornell University, Abbott as an undergraduate in Landscape Architecture and Abbuehl as a graduate student in Architecture. I undertook archival research at Cornell University to find out more about their background.

6.2 The Cornell Programme in Landscape Architecture

Cornell University was one of the first American universities to offer a programme in landscape architecture. The original programme (1904) was called Outdoor Art. The name was changed twice-- first to Rural Art (1906), then to Landscape Art (1912). Finally in 1920, the programme became Landscape Architecture and changed its affiliation from the College of Agriculture to the College of Architecture [1]. The programme had affiliation with practitioners, including the Olmsted Brothers and Bryant Fleming. Fleming directed the programme in 1908. The Cornell programme aimed to give a broad fine arts education to its students.

6.3 Stanley Abbott's Undergraduate Courses

Abbott's transcript of course work bears this out. (See Appendix One)

Out of 47 courses taken for the Bachelor of Landscape Architecture degree: six were in painting and drawing, (including Elements of Drawing, Water Colour and two semesters

of Life and Antique which consisted of “drawing from the antique and from life”. (Cornell College of Architecture, 16). Eight of Abbott’s courses were in history and theory, (including History of Philosophy, History of Architecture, History of Painting and Sculpture, and Theory of Landscape Architecture).

Of the remaining courses: nine were landscape design studio related, (including two Planting Design studios); seven were technical courses: Surveying, Advanced Surveying, Concrete, Mechanics (2 semesters), Materials of Construction, Earthwork Construction; three were math courses - Descriptive Geometry, Advanced Algebra, Mathematics; and three were science or liberal arts courses- Geology, English, (two semesters); five were plant related courses: Woody Plant Materials, Floriculture (2 semesters), Woody Plant Materials, Horticulture. The remaining were (three) Landscape Thesis and Landscape Seminar (2 semesters); (three) Physical Education, Hygiene and Drill. Abbott earned a Bachelor of Landscape Architecture degree from Cornell’s five-year programme in 1930.

6.4 Edward Abbuehl at Cornell

Edward Abbuehl held a Bachelor of Science degree in Architectural Engineering from the University of Kansas (1925). He entered the graduate architecture programme at Cornell and earned a Master of Architecture degree in 1928 [2]. In 1925-26, Abbuehl taught Abbott, then freshman in the Cornell landscape architecture program, Descriptive Geometry 151 and 152. Later in 1927-28, he taught him Mechanics, 321 and 322.

Abbuehl’s time at Cornell was much briefer than Abbott’s. He took three historical seminar courses taught by Phelps and a rendering course. Abbuehl’s overlap with Abbott was in the courses he taught him, rather than in classes they took together. Unfortunately, syllabi for Abbuehl’s courses- Descriptive Geometry and Mechanics - were not found in my search of the Cornell archives. It is known that Abbott thought highly of Abbuehl for, in 1934, he was the first person Abbott hired to assist with the design of the BRP.

6.5 Cornell Professors

Some of the Cornell professors had been educated in Europe. Francke Bosworth, Dean of the College of Architecture, taught Abbott Theory of Architecture. Bosworth was a graduate of Yale (1897) and attended the Ecole des Beaux Arts, Paris from 1897-1901 [3]. Albert Phelps taught Abbott two semesters of History of Architecture. Phelps had a M. Arch from University of Illinois and had spent a year at the Bavarian Technical School in Munich. He travelled extensively in Europe and led groups of students to

Europe to study architecture and “works of landscape design”[4]. Edward Lawson, Abbott’s design studio instructor, was the first Cornellian to win the Prix de Rome.

E Gorton Davis taught Theory of Landscape Architecture and History of Landscape Design. Davis had established himself as a successful practitioner and was associated with Bryant Fleming in his early career. Davis went on to design many estates on Long Island, NY and upstate in the Ithaca vicinity. At the time of his premature death at age 50 in 1930, he was working on what are now familiar icons of Cornell’s campus - Cascadilla and Fall Creek gorge parks [5]. The parks use naturalistic design—winding dirt paths, rustic stone overlooks and retaining walls, with native plants to complement the dramatic scenery of the gorges.

6.6 Links between Abbott and 18th c. Theory

6.6.1 Influence of Painting via Professor Olaf Brauner

Professor Olaf Brauner, (1869-1947) a respected painter and educator, taught at Cornell’s College of Architecture from 1895 until 1939 [6]. Brauner helped shape the curricula of the disciplines within the College. Fine arts, a department he later headed, became one of the foundations of both the architecture and landscape architecture programs. During his time at Cornell, Brauner taught virtually every student, including Abbott. Abbott took two semesters of Life and Antique (a drawing course) and one semester of History of Painting and Sculpture with Brauner.

While teaching, Brauner continued to produce paintings and to exhibit his own work and that of other artists. The Cornell University archives did not have syllabi for Brauner’s classes but an exhibition pamphlet he authored gives an idea of what he considered important in painting. Referring to a painting by Jacob Lie, called ‘Nature’s Forces’:

“Every line is made to suggest the onrush of the wind – its direction, even to the lines of the puddled road as they sweep from left to right, and this same on rush is further emphasised by the tugging, struggling, horse, which, at the same time, gives enough of a contrast in direction to hold the eye well within the picture” [7].

“Portraiture seems of less interest to most people than landscape or genre (painting)...in portraiture the artist must depend upon sheer beauty of arrangement and a sensitive grasp of the peculiarities that make the sitter interesting. Through the arrangement of lines, spaces, light and shade and colour, the artist may create a thing of enduring beauty in a portrait”[8].

Like Hogarth, Brauner had a long, productive career as an artist and arrived at his insights from practical experience. Brauner “believed his students should learn technical skills and

the ability to observe and abstract the essential or the aesthetic from nature, and he trained his students along traditional lines. They began with the traditional academic foundation, drawing from the single nude figure in life class and progressing from drawing to painting”[9]. The concerns of the painter, in Brauner’s words were: “to produce through a beautiful scheme of light and shade, form and colour, certain moods and feelings that are born in him by the impression that certain phases of nature give him” [10]. It is likely that Brauner’s sensibilities influenced Abbott. Abbott’s description of the parkway design seems to reflect Bruner’s approach to composition: “A good oil painting or musical work can’t have its dead areas, its neglected detail...All elements must compose, so as to please. The only reason for the Blue Ridge Parkway is to please the viewer and so its chief concerns are beauty and interest” [11].

6.6.2 Linking 18th c Theory to Frederick Law Olmsted, Sr

Mavis Batey, [12] says that Humphry Repton’s influence was felt throughout England and the continent. According to Batey, Andrew Jackson Downing took the picturesque to the USA. Further, she states that his Treatise on the Theory and Practice of Landscape Gardening, Adapted to North America, (1841) was “influenced by Repton’s work” [13]. A link between Repton and Olmsted can be traced. Repton influenced Downing who brought Calvert Vaux, an English architect, to the USA to work in his firm. Upon Downing’s death, Vaux, sought out Frederick Law Olmsted to partner with him on the Central Park competition. In his preface to the 1907 edition of Repton’s The Art of Landscape Gardening, John Nolan calls Olmsted, Repton’s “American successor”[14]. Olmsted credited Repton, Price and Downing, among others, as sources of inspiration [15]. Olmsted also read Burke and was extremely interested in the psychological effects of landscape scenery [16]. Olmsted influenced successive generations of landscape architects through the examples of his writing and through his built work. The style favoured by Olmsted and his sons was unquestionably picturesque.

6.6.3 Linkage to 18th C. Theory through Apprenticeship

A link between Abbott and 18th c theory can be traced through the apprenticeship system of training. This type of training was the only recognised method of educating landscape architects prior to the founding of formal educational programs at the turn of the 20th century. The tradition of apprenticeship training was strong in Abbott’s time. Indeed, it continues to be an important component of professional training today.

Bryant Fleming, an early director of the Cornell landscape programme apprenticed to Olmsted, Sr. In a letter to a prospective student, Fleming advised reading, among others, “Sir Humphrey Repton on Landscape Gardening... a book which deals splendidly with the principles and general ideas of landscape work...and such books as Downing, Essays of Sir Uvedale Price” [17] It is assumed that these authors were also read by students in the Cornell Programme. Gorton Davis apprenticed to Fleming. Davis then taught Abbott History and Theory classes. Davis’ approach to design theory is likely to have been influenced by his training in Fleming’s office. Thus, although there is no direct evidence that Abbott read Hogarth or Burke, he was taught by Davis who had applied picturesque theory in his work, and he apprenticed to Gilmore Clarke who adopted picturesque theory in his design practice. Clarke was much concerned with beauty as can be observed in his writings, notably his criticism of the Pennsylvania Turnpike [18].

Clarke was one of the first acknowledged experts in parkway design [19]. Clarke worked on the Bronx River Parkway, NY and eventually headed the Westchester County Parks Commission where Abbott worked prior to the BRP. Clarke graduated from Cornell’s programme in Landscape Art in 1913. He became well known as a parkway designer and was involved in the earliest phase of the design of the Blue Ridge Parkway. Stanley Abbott worked under Clarke at the Westchester County Parks and Parkways Commission from 1930 -32. When Clarke was asked to consult on the design of the BRP, he requested that Abbott be assigned as his field representative. Later when Clarke abruptly resigned from the BRP project, Abbott came into a role of greater design responsibility [20].

Clarke’s approach to design was grounded in art as can be observed in an essay on the architecture of bridges in which he asserts that as Americans moved out of the pioneering phase, they wished for public works of artistic merit.

“As a people, we were satisfied with the many ugly structures on highway and railroad; but gradually we became sensitive to things out of harmony with nature, things which irritate those who have benefited by contact with the fine arts. The pioneering days of opening up vast new and unexplored regions are over and we are taking time for consideration of the beautiful in our surroundings” [21].

Clarke echoes Hogarth in his articulation of principles to guide design. He even uses the same term as Hogarth – fitness in his discussion of appearance of form and materials:

“*Fitness* (italics Clarke’s) and beauty of design must be developed together. For a structure to be fit it must appear strong enough to fulfill the purposes for which it is built and at the same time be simple and honestly portray the materials which go to make it up. We should strive for honesty in design and construction” [22].

Clarke goes beyond Hogarth in his postulation of principles which are directly related to landscape. He writes that a bridge should do more than express integrity of form and materials, (what Hogarth would term fitness). The structure must also suit its surroundings or natural context.

“A structure must be *suitable* (italics Clarke’s), it must fit well into its surroundings...The more rugged the scenery and surroundings, the more rustic may the bridge be. It should never be so dominant a part of a picture that it does not leave one with the impression that is a part of the earth it is built upon” [23].

In his conviction that manmade features should be brought into a harmonious relationship with their surroundings, Clarke repeats the advice of Repton who states:

“(Landscape design) must studiously conceal every interference of art, however expensive, by which the scenery is improved, making the whole appear the production of nature only; and ...all objects of mere convenience or comfort, if incapable of being made ornamental, or of becoming proper parts of the general scenery, must be removed or concealed” [24].

6.7 Summary

Although the linkage is tenuous, it is clear that 18th century picturesque theory was being applied in 19th and early 20th c American landscape architecture and continued to influence designers and educators of the 20th century. While a direct link to Hogarth was not found in the Cornell syllabi, is unlikely that Abbott would not have had an understanding of picturesque theory given both his education and apprenticeship.

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CHAPTER 7 – DISCUSSION OF 18TH CENTURY AESTHETIC THEORY AND THE BRP DESIGN

7.1 Introduction

The hypothesis of this research is that the Blue Ridge Parkway is a twentieth century expression of the eighteenth century aesthetic theory of Hogarth and Burke. The first research objective was to determine whether the designers of the BRP consciously used Hogarth's and Burke's concepts. In order to do this it has been necessary to examine the background of the BRP design and its designers. The results of the primary archival investigation of design documentation indicate that the BRP design is a reflection of Picturesque principles.

7.2 The BRP in relation to Hogarth's "Line of Grace"

The central structuring feature of the BRP and that feature which governs the motorist's experience, is the spiral curve. Abbott said that the motor road was the means "by which the varied and countless scenes...are unfolded"[1]. He considered the road a form of sculpture [2]. Other BRP designers noted the importance of the road's graceful alignment. Van Gelder states that the landscape architects conceptualised the alignment as "one continuous flowing curve" instead of a series of "tangents connected by curves no larger than necessary"[3].(Figure 38) Hope [4] refers to the gentle effect of the spiral curves: "(It's) a curvilinear design...It's gentle curves in that you have a spiral that leads into a curve and a spiral that leads out of it...And it just flows...But it is just so easy and gentle to drive" [5].

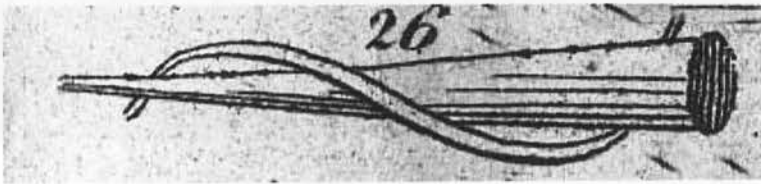


Figure 37 Hogarth's representation of the "Line of Grace" (Hogarth, Plate I, Figure 26)

Hogarth proposed that the serpentine line is fundamental to successful artistic composition. The waving line leads the eye in different directions lending a sense of liveliness to a work of art. The reverse curves of the BRP motor road lead the eye on Hogarth's "wanton chase" [6]. Hogarth says that the three dimensional form of the serpentine curve is the "Line of Grace". (Figure 37) As an example, he uses a cone with a wire twisting and turning up and over the cone.

Hogarth believes that the words of a successful architect may be found in the landscape, and in

The BRP motor road likewise is a three dimensional composition. It is a road which moves up and over the mountains, always maintaining a gentle vertical gradient and horizontal curvature. (Figure 39)

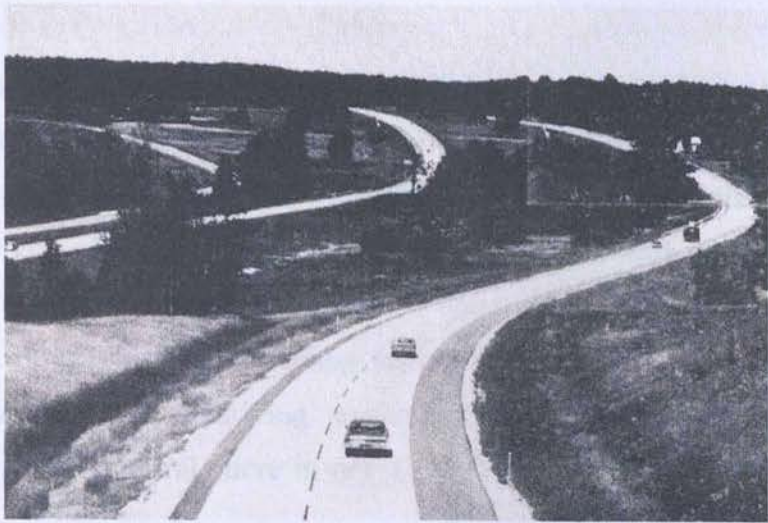


Figure 38 Photo of reverse spiral curves and flowing alignment. (Practical Highway Esthetics, p1)



Figure 39 BRP motor road's horizontal and vertical curves hug the terrain near Rocky Knob, VA Photo by Mary Myers, 2002

The BRP alignment does not strictly adhere to Hogarth's preferred form of the serpentine line. (Line 4 of Figure 4) Some of its curves are more robust, or rounder than the preferred form. Others are straighter. Some of the spirals are longer, some shorter. These variations in the serpentine line are necessary to adjust the road to its different topographical conditions and to add interest in a road that is 469 miles long.

Hogarth believes that the voids of a sculptural serpentine form, like the cornucopia, are as or more beautiful than the solids. The BRP motor road is essentially a void carved out of the landscape. Scenes around this void are composed of solids, (woods, rocks) and voids, (where the mowed line of the grass shoulder flares out into rounded bays, or where fields occur).

One finds a comparison with Hogarth's description of the vertical movement of the minuet in the relatively gentle gradient of the Blue Ridge Parkway. The designers chose to use gentle vertical grades, (3 – 6% with 8% maximum for ¼ mile distance) conducive to pleasant driving. The horizontal curves are coordinated with vertical curves. The beginning of a horizontal spiral curve will occur simultaneously with the beginning of the vertical curve, or may precede it, acting as a safety cue to the motorist to anticipate change. (Figure 40) Thus driving movement, like the minuet, is very much choreographed. A longspiral curve in one direction eases the driver effortlessly into a reverse curve.

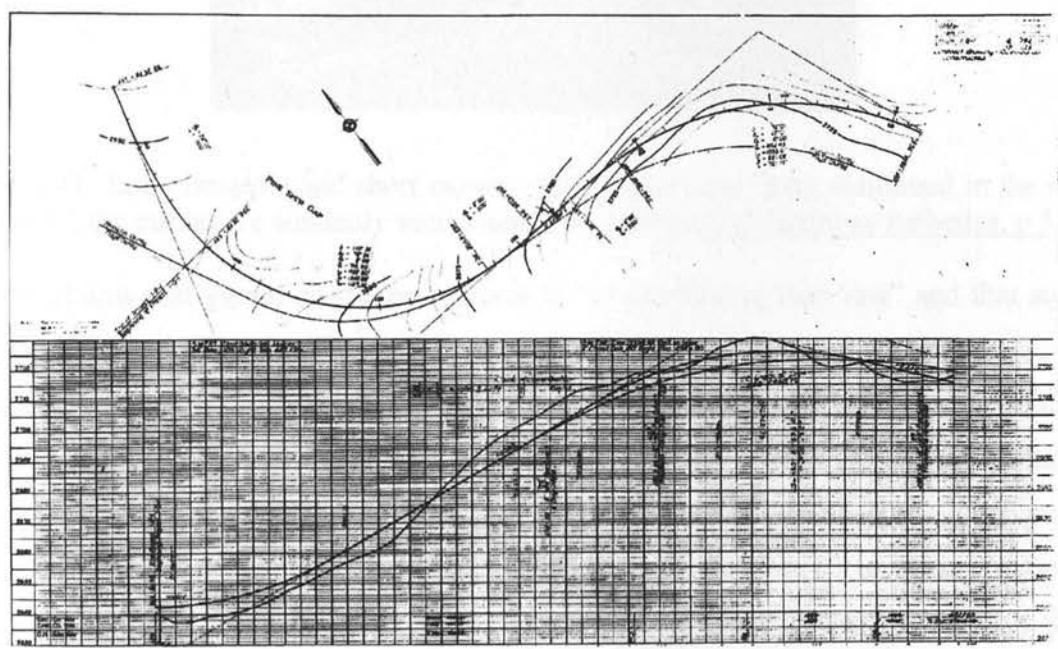


Figure 40 Engineering drawing showing in phase horizontal alignment (top) with vertical alignment (bottom). Section 1Q (BRP Archives)

7.3 The BRP in relation to Burke's concepts of emotion and motion

Burke's central position was that emotion is associated with beauty. He argued that beauty inspires love. The qualitative methodology cannot ascertain which emotions are inspired by driving the parkway. The quantitative methods will address that issue. However, Burke also argued that a relaxed state is conducive to positive perception of

beauty. One of the stated purposes of the BRP is leisure, or recreation [7]. The designers wanted the motoring experience to be as relaxing as possible. The road structure was meant to promote this state. Designers minimized intersections with other roads and limited access points in order to ease distractions and promote safety. A sense of safety would in turn allow the motorist to relax. Burke made a case for smooth structure of the motor road relative to relaxation: “Nothing long continued in the same manner; nothing very suddenly varied can be beautiful; because both are opposite to that agreeable relaxation, which is the characteristic effect of beauty” [8].



Figure 41 Long tangents and short curves –the tangents are “long continued in the same manner”, the curves are suddenly varied and abrupt. (Practical Highway Esthetics, p 58)

Burke claims that gentle oscillatory motion is “more relaxing than rest” and that such a sensation is derived from “being swiftly drawn in an easy coach on a smooth turf, with gradual ascents and declivities” [9]. Burke claims that the same sight, if experienced in a jolting, rough motion, will not appear as pleasing as when experienced with smooth, rhythmic motion. If this principle is true, then the long spiral curves, gentle gradient and smooth pavement of the BRP motor road are of utmost importance to the perception of landscape. Abbott seems to have recognized this when he proposed that the road is like a movie projector which presents a series of landscape scenes to the motorist [1]. The spiral curves aim and focus the motorist at various scenes which are moved through and left behind. The spirals glide effortlessly into one another. If the parkway road had been designed, as some of the engineers advocated, with short curves and long tangents (Figure 41), the motion would have been more irregular with abrupt transitions between curves and tangents. This would, according to Burke, have made the motorist less likely to consider the surroundings pleasing or beautiful.

7.4 The BRP in relation to Hogarth's Concept of Motion

Hogarth made a case for motion or action that describes the Line of Grace—body movements, such as bows, curtsies and in dancing. Hogarth said that these types of graceful motion are not part of everyday action but are associated with “times of leisure” [10]. If the line is activated, it becomes, according to Hogarth, the highest form of the serpentine line. The BRP is a three dimensional serpentine line, waving up and over the crests of mountains and curving in and out around fields and promontories. It is activated by the motorist who glides in a forward motion, at a steady and smooth rate along the serpentine line.

7.5 The BRP in relation to Hogarth's and Burke's Concepts of Variety

Both Hogarth and Burke argued the importance of variety. Hogarth's serpentine line waves in different directions enticing the eye with its lively variety. Burke claimed that lines of beautiful objects must constantly vary their direction but that such change must be smooth [11]. This is the variety expressed in the smooth curvature of the BRP motor road whose line moves back and forth from one side of the ridge to the other, and down into valleys and around and over streams and ridge tops. The transition between motor road landscape and larger landscape is also smoothly transitioned. As Repton advocated, the boundary is obscured or disguised [12]. This was accomplished through irregular plantings and harmoniously blending the cuts and fills of the motor road construction with the adjacent topography.

There appears to have been no standard approach to variety of scenery. The duration, number and type of scenes were generally left up to the landscape architect responsible for that particular section. The following excerpt from my interview with Robert Hope, BRP landscape architect, indicates reliance on professional judgment. It would seem that the landscape architects shared similar opinions of the best design approach:

“Mary Myers: Was there a certain ratio of interest or change or variety within a given stretch, say ten miles shouldn't be enclosed woodland on each side? Was any kind of approach to that written down or specified?

Robert Hope: Well, there was but I don't know that it was orchestrated to the degree that you indicate. It ... was the skill of the landscape architect in locating the parkway in such a way so that you see all of these (scenes). And there is that variety" [13].

Ted Pease, landscape architect of the NC section of the BRP, claimed that very little of his design work had to be changed upon review by Abbott or Abbuehl [14]. He was apparently grounded in the same principles of naturalistic design as his superiors. When asked how the landscape design was done, Ted Pease indicated that it was spontaneous and intuitive: "I'd have to pull that out of my head right then" [15]. It is as if the designers had all read from the 'same book'. Cues were taken from the surrounding landscape and used in the asymmetrical form.

7.6 Education of BRP designer Abbott related to 18th century theory

Archival research uncovered Abbott's fine arts training while at Cornell University. He took many history and theory courses, as well as, classes in painting.

Repton advised landscape improvers to look to painting for inspiration and direction. Abbott would presumably have understood the merits of Repton's advice having taken both painting and landscape design studios at Cornell. Abbott's descriptions of his approach to the BRP design included references to painting: "There should be no dead spaces in the composition" [16]. Further, links to the theory of Repton and Burke were found through Cornell reading lists and through an educational lineage tracing back to Frederick Law Olmsted, Sr, a noted designer of the Picturesque tradition.

7.7 Summary

It is not possible to claim uncategorically that the BRP design is specifically derived from Hogarth's and Burke's theories. Research did not uncover verification that Abbott and the other designers were choosing these particular theories upon which to base the design. However, the design documents and built design reflect many of the Picturesque principles, most importantly, the serpentine "Line of Grace and variety.

7.8 References

- [1] *Research and Interpretation, Blue Ridge Parkway Master Plan* (1950) Asheville, NC Blue Ridge Parkway Archives, p 2
- [2] Abbott, S (1958) *Oral History Interview with S. H. Evison*, Blue Ridge Parkway Archives, Asheville, NC, p 2
- [3] van Gelder HE (April 27, 1934) *Notes on Alignment & Grading on Skyline Drive*, Blue Ridge Parkway Archives, Asheville, NC, p 1
- [4] Hope, R A (November 4, 2000) *Interview with Mary Myers*, Blue Ridge Parkway Archives, Asheville, NC
- [5] Hope, pages 9 – 10
- [6] Hogarth W (1997) (1753 Original Publication) *The Analysis of Beauty*, Yale University Press, New Haven & London, p 45
- [7] National Park Service Blue Ridge Parkway *Purpose of the Blue Ridge Parkway - Chapter I Div A Section 1*, (no date) Asheville, NC Blue Ridge Parkway Archives, sheet 3
- [8] Burke, E (1958) (original publication 1757) *A Philosophical Enquiry into the Origin of our Ideas of the Sublime and the Beautiful*, Routledge and Kegan Paul, London, p 155
- [9] Burke, page 155
- [10] Hogarth, page 106
- [11] Burke, page 115
- [12] Repton, H (1907) (1795 original publication) *The Art of Landscape Gardening*, Houghton, Mifflin and Company, Boston and New York, p 43
- [13] Hope, page 19
- [14] Pease, T (November 5, 2000) *Interview with Mary Myers*, Blue Ridge Parkway Archives, Asheville, NC
- [15] Pease, page 28
- [16] Hope, RA (April 10th 2001) *Interview with Mary Myers*, Interviewer's files, p. 1

8.1 Introduction

The purpose of the survey(s) was to test the hypothesis that the public response to BRP at the end of the 20th century reflects Hogarth's and Burke's predictions based on their principles of design. Hogarth's position is that use of the serpentine line to structure a work of art will result in beauty. The line imbues the composition with motion by waving in different directions and leads the eye on a "wanton chase" [1]. The viewer becomes pleasantly engaged in designs based on the serpentine line. Vertical motion activates the line even more, resulting in the pleasing "Line of Grace". Hogarth claimed that variety within a composition is the antidote to boredom and that such variety ought to be composed so as to fit the overall structure.

Burke's position is that a relaxed, languorous state and the emotion of love are associated with beauty. He believes that variety is important to a work of art but that it cannot be angular, it must be smoothly transitioned variety, leading from one visual episode to another. Burke claimed that gentle oscillatory motion is conducive to positive perception of scenic beauty [2].

The positions of the theorists helped direct the development of the questionnaires, especially that of the public survey which was developed after the hypothesis was more clearly defined. It was determined that conducting a pilot test would be useful to gain an understanding of how to design, conduct and refine a survey. The pilot test was performed in a controlled situation. 41 respondents were shown a video taped sequence of BRP motor road in a darkened classroom then given as much time as they needed to fill out the 14 question survey. The results of the pilot survey assisted in identifying questions that proved unclear or difficult to answer and in refining the questionnaire in relation to the hypothesis. Additional questions were added to the questionnaire in an effort to obtain more specifics about the motorists' response to the BRP experience. The survey venue was changed for the final survey in an effort to gain insights about the "real" rather than simulated motoring experience. As Connolly [3] and Appleyard [4] and others have pointed out, the motoring experience is more than just visual. Kinaesthetics is another essential way of experiencing the road. Hogarth and Burke emphasised the role of motion in perception of beauty. Hogarth claimed that the Line of Grace was an expression of

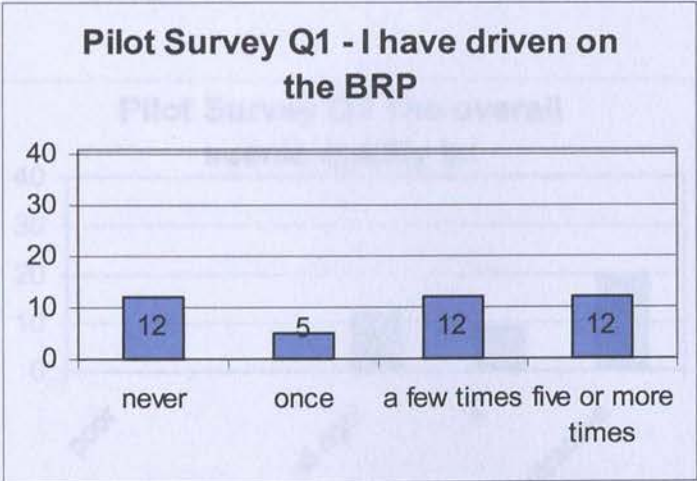
visual motion and was at its best when activated by motion—as in the minuet. Burke claimed that gentle oscillating motion was strongly related to positive perception of beauty. It was not possible to gain an adequate sense of motion through the videotape tool. The motorist could respond to this aspect of the experience only by driving the BRP. Thus the survey venue was changed to a site on the BRP: the historic mill site at Mabry Mill, milepost 176.1. In an effort to reduce biased sample collection, *all* persons entering the site were asked if they would be willing to fill out the questionnaire.

The pilot questionnaire was altered and lengthened to 33 questions. Many of the additional questions were demographic, (gender, age, occupation) to gain a more detailed view of how different groups perceive the BRP. Experiential questions were also added to elicit more feedback on specifics related to the perception of the BRP. (curves, rating of different view types, adjective list) Some of the experiential question results were not analysed because, upon reflection in the light of the data, the results did not shed light upon the hypothesis. (Q 30)

8.2 Pilot Survey Results

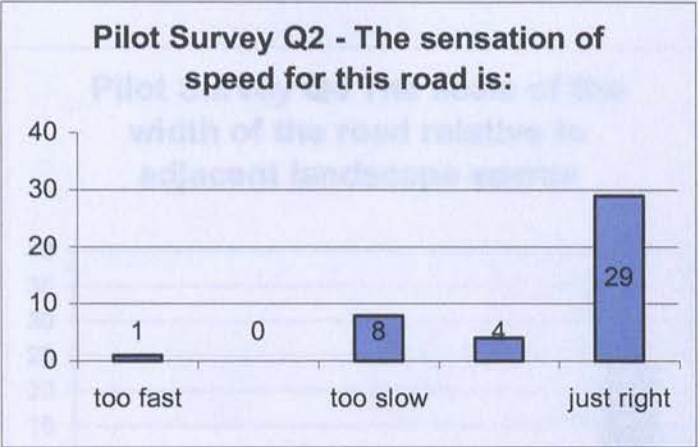
Q1 Previous Visits

A majority of the respondents, (69%, 29), had driven on the parkway at least once before. 28.6% had visited more than five times. 28.6% (12) had never driven on the BRP.



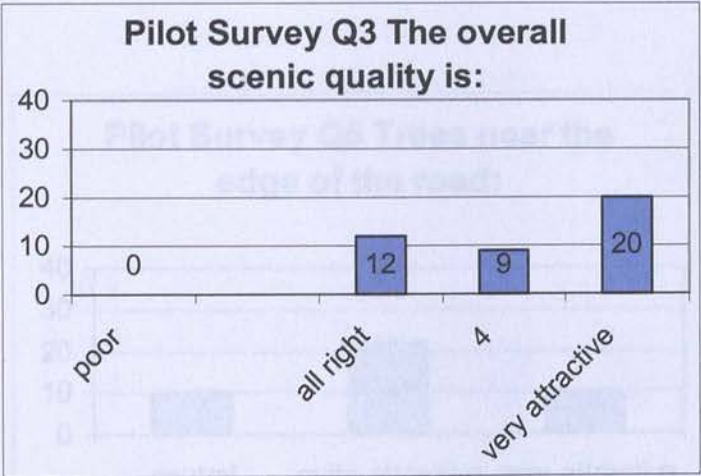
Q2 Sensation of speed for the road

The majority of respondents, (69.0%, 29) said that the sensation of speed was just right. 9.5% (4) said that the speed was somewhere between too slow and just right. 19% (8) said that the speed was too slow. 2.4% said that the speed was too fast.



Q3 Overall scenic quality

The majority of respondents (69%, 29) rated the scenic quality as better than all right. 47% (20) rated it as very attractive. The lowest rating for scenic quality was all right, 28.6%, (12)

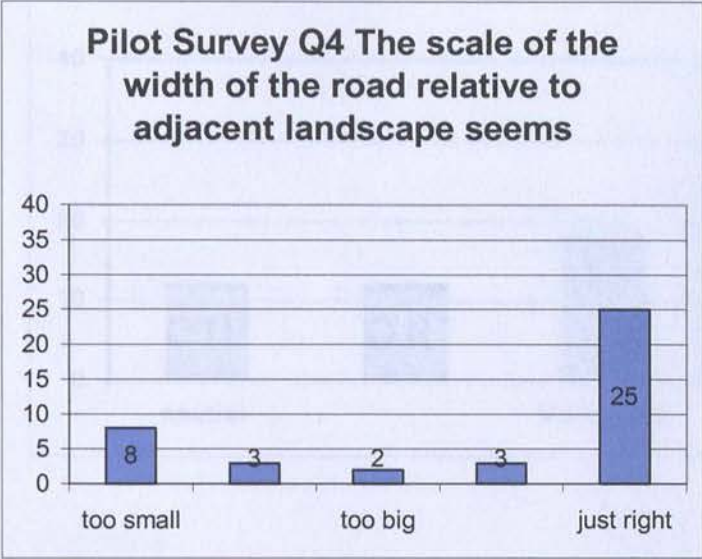


Q4 The fit of the road to the terrain

The responses for fit of the road ranged from neutral to very good. 52.0% (20) rated fit as

Q4 Width of the road relative to adjacent landscape

More than half (59.5%, 25) of the respondents rated the width of the road as just right. 19.5%, (8) rated the width of the road as too small.

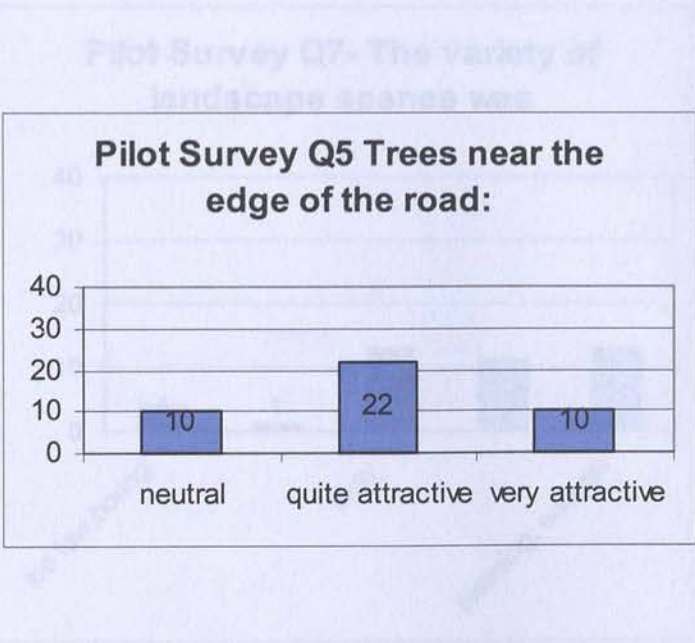


Q7 Variety of landscape scenes

31% (13) rated the variety of landscape scenes as pleasing. 52.0% (20) rated variety as

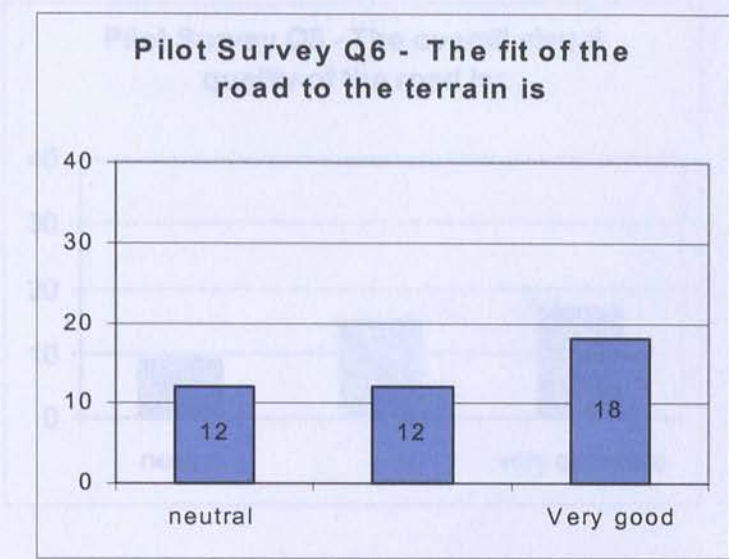
Q5 Attractiveness of trees near the edge of the road

76.2% (32) of the respondents rated trees near the edge of the road as quite or very attractive. The lowest rating was neutral. (23.8%, 10)



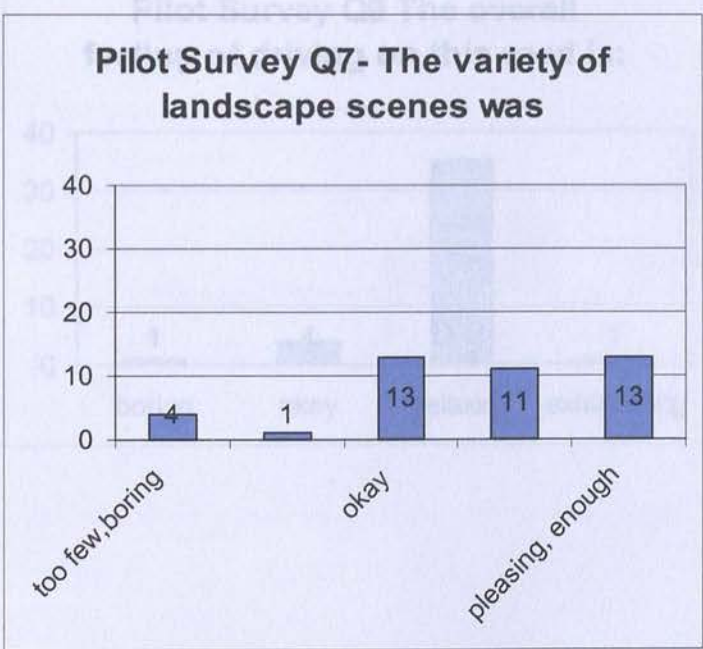
Q6 The fit of the road to the terrain

The responses for fit of the road ranged from neutral to very good. 42.9%, (18) rated fit as very good. The remaining 24 responses were divided equally between neutral (c) and (d). No one rated the fit of the road as less than neutral.



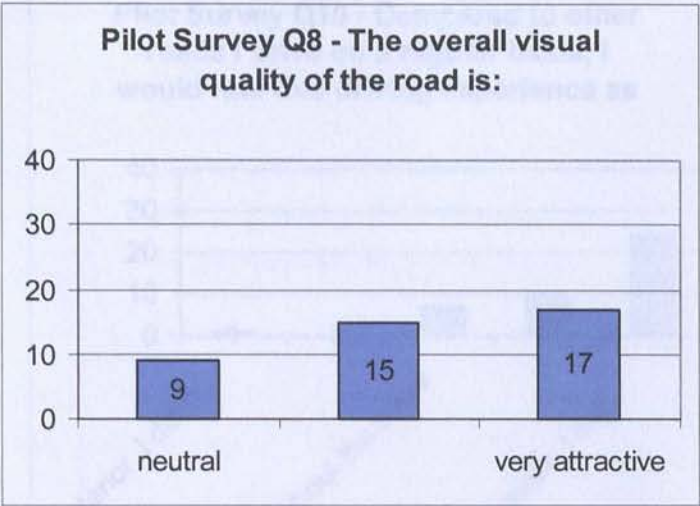
Q7 Variety of landscape scenes

31% (13) rated the variety of landscape scenes as pleasing, (e). 31% (13) rated variety as okay (c). 26.2%, (12) rated the landscape as (d). The remaining 11.9% (5) rated variety as less than okay. The majority of those (4 respondents) rated it as boring (a).



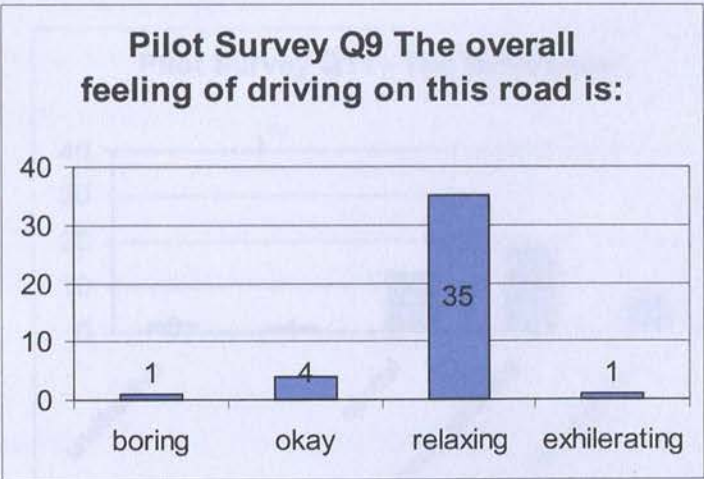
Q8 Overall visual quality

Responses for overall visual quality ranged from neutral (21.4%, 9) to very attractive, (40.5%, 17). No one rated visual quality as less than neutral.



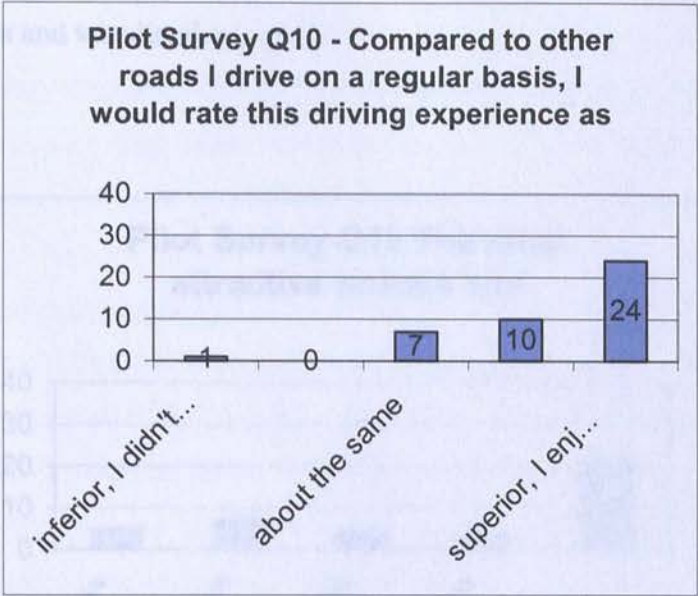
Q9 Overall feeling of driving

The majority of respondents (83.3%, 35) rated the feeling of driving as relaxing. 9.5% (4) rated it as okay (c). The remaining responses were divided between boring (2.4%, 1) and exhilarating, (2.4%, 1).



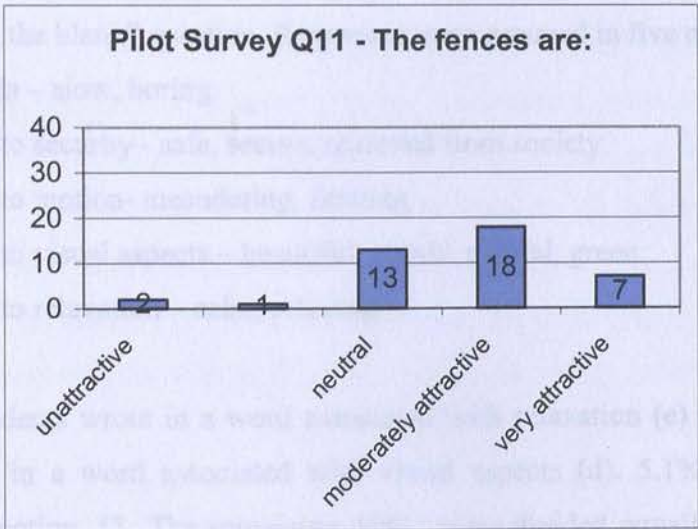
Q10 Rating of driving compared with other roads

Most respondents rated the driving experiences as better than other roads they drive on a regular basis. (80.9%, 34) 16.7% (7) rated the driving experience as about the same as other roads they drive. 2.4%, (1) rated the driving experience as inferior.



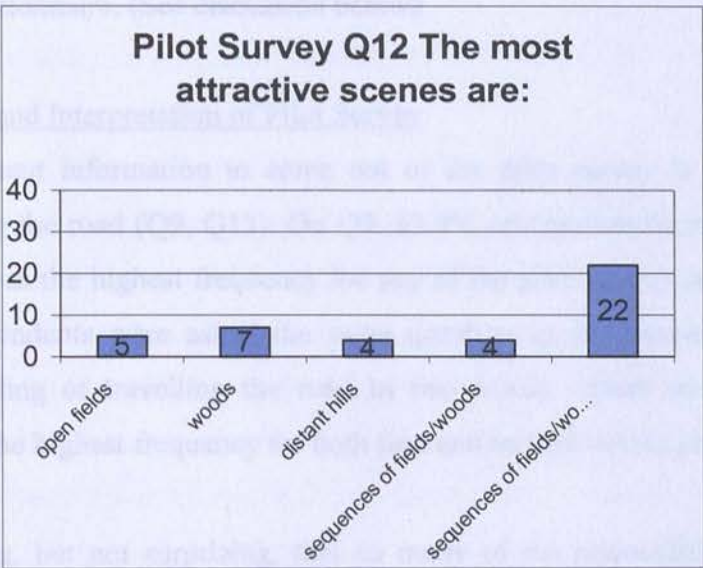
Q11 Attractiveness of fences

Respondents found fences to be attractive elements in the landscape. 59.6%, (25) rated the fences as moderately (d) or very attractive (e). 31%, (13) rated the fences as neutral. 7.2%, (3) rated the fences as unattractive or moderately unattractive.



Q12 Most attractive scenes

52.4% (22) of the respondents rated sequences of fields, woods and distant hills as most attractive. 16.7% (7) rated woods as most attractive. 11.9%, (5) rated open fields as most attractive. The remaining 19% (8) were divided equally between distant hills and sequences of fields and woodland.



Q13a and b Two words to describe the feeling of travelling this road

This was a “fill in the blank” question. Responses were grouped in five categories:

- (a) Negative words – slow, boring
- (b) words related to security - safe, secure, removed from society
- (c) words related to motion- meandering, flowing
- (d) words related to visual aspects – beautiful, scenic, natural, green
- (e) words related to relaxation – calm, relaxing

61%, (24) respondents wrote in a word associated with relaxation (e) as the first word. 12.8% (5) wrote in a word associated with visual aspects (d). 5.1% wrote in words associated with motion, (3). The remaining 19% were divided equally between words associated with security (b) and negative words (a).

46.9% (15) respondents wrote in a word associated with relaxation (e) as the second word. 28.1%, (9) wrote in words associated with visual aspects, (d). 12.5%, (4) wrote in words associated with security, (b). 9.4% (3) wrote in negative words, (a). 3.1% (1) wrote in words associated with motion, (c).

Q14 Something you wished had been asked

There were not many responses to this “fill in the blank” question. The responses were not categorised. Instead, they were reviewed for suggestions on how to change and improve the questionnaire. (See discussion below)

8.3 Analysis and Interpretation of Pilot Survey

The most important information to come out of the pilot survey is about the overall feeling of driving the road (Q9, Q13). On Q9, 83.3% of respondents rated the feeling as relaxing. This was the highest frequency for any of the pilot survey questions. Later in the survey, respondents were asked the same question in an open-ended format – to describe the feeling of travelling the road in two words. Here responses related to relaxation were the highest frequency for both first and second words. (61.5%, 46.9%)

It was interesting, but not surprising, that so many of the respondents had driven the parkway at least once before (69%). The mountains are a recreational destination for many North Carolinians and the BRP is a destination in and of itself. Positive previous visits to the BRP could have predisposed respondents to view this particular section favourably. However, it is not known whether previous visits *were* positive. For respondents who had visited the BRP more than five times, (28.6%), return visits probably indicate positive experiences. These respondents may have had a more favourable response overall to the videotape. The Chi square test was performed on collapsed data. Q 1- previous trips was collapsed as follows: (1) never or once, (2) more than once (many over five previous trips) . Q10 – rate the driving experience as: (1) inferior or about the same, (2) superior. Chi square found a significance of .245 and showed that 22 respondents who had driven the on the BRP never or once rated it superior.

The videotaped sequence evoked different perceptions of speed. It was conjectured that the camera's narrow angle might produce a sense of accelerated sense of speed. However,

only 2.4% of the respondents rated the drive as too fast. 19% rated it as too slow and 9.5% said that the speed was slower than just right.

A significant majority of respondents 80.9% rated the driving experience highly in comparison with other roads they regularly drive. Likewise a majority of respondents (83.4%) rated the overall feeling of the experience as “relaxing”. The closeness of these numbers might lead one to conjecture that a relaxing driving experience is associated with a superior experience. Is variety also associated with this? Chi square test indicated a significant correlation (.035) between the feeling and variety. 22 out of 35 respondents who rated the experience relaxing, also rated the variety as pleasing.

8.4 Discussion of Pilot Survey

It took respondents four minutes to watch the video. Most filled out the questionnaire while watching the video or used a few minutes afterwards to fill out the pilot questionnaire. (There was no time limit given) Its brevity resulted in low frustration on the part of the respondents. However, the drawback of this method was that the videotape was only a facsimile of the actual motoring experience and not adequate to fully test the hypothesis. The visual sense of the BRP was limited by the camera lens’s angle which included only the windshield view between the two metal struts. Views out of the side windows were not visible in the videotape although they are visible to the motorist. Perception of other sensory aspects, especially that of motion, were not possible. Thus, the venue was changed to a parkway rest stop in order to survey motorists who had just driven the BRP. The pilot survey also pointed out that clarifying and adding to the questionnaire would aid in understanding public response as related to Hogarth’s and Burke’s theoretical positions.

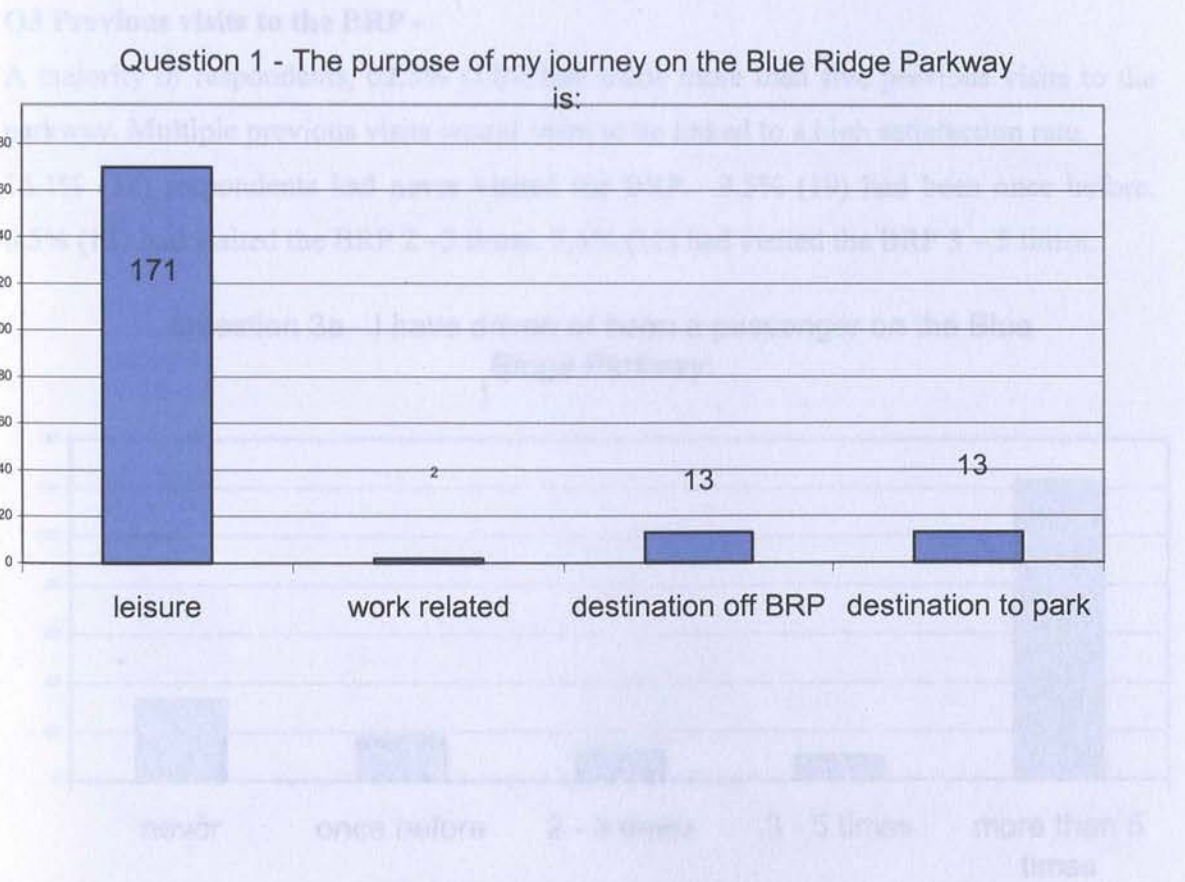
Some questions had ambiguous wording. Question 1 asked respondents if they had “driven on the BRP”. It would have been better to ask them if they had driven or been a passenger. The wording of this question was changed for the second survey. Question 8 was not clear enough in its wording. This question was dropped in the second survey. Q13 and Q9 were about feeling. However Q9 provided a range of answers whereas Q13 was fill in the blank. The ordering of the questions might have biased the respondent in favour of the answers provided by the questionnaire. The ordering was changed on the second survey.

Responses to Question 14: “Was there something you wished that I had asked on the survey?” indicated that respondents would have liked to have had questions related to plant variety and colour, road safety and scenic preference. Such questions were included in the second survey. (Q31, Q21b, Q30)

Respondents also said that they wished there had been words associated with all of the ratings. The (2) and (4) ratings on several questions had no words associated with them which may have deterred respondents from checking those options. This was changed on the second survey.

8.5 Public Survey Results

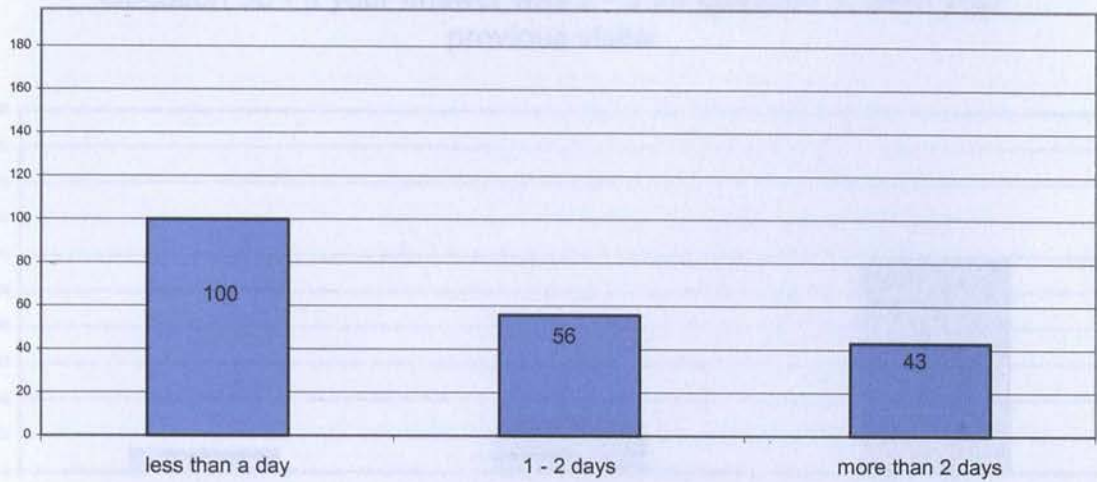
Q1 Purpose of BRP journey– A very large percentage of the respondents 85.9% (171) were on the BRP for leisure purposes, “to enjoy driving the parkway itself”. 1% (2) respondents were there for work. 13% (26) were on the BRP in order to get to a destination. The majority of respondents were at leisure which possibly could have predisposed them to a more relaxed, or happy, emotional state.



Q2 Time of previous visits

Q2 Time on the parkway – Half of the respondents 49.7% (99) intended to spend less than a day on the parkway. 28.6% (57) planned to spend one to two days there. 21.6%

Question 2 My time on the parkway will be:

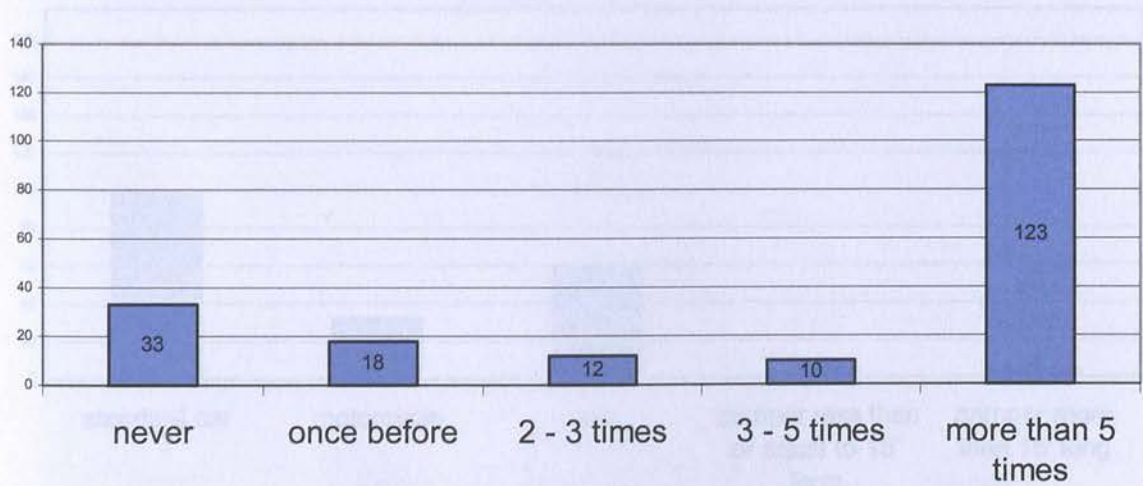


(43) respondents planned to spend more than two days on the BRP.

Q3 Previous visits to the BRP -

A majority of respondents, 62.3% (124) had made more than five previous visits to the parkway. Multiple previous visits would seem to be linked to a high satisfaction rate. 16.1% (32) respondents had never visited the BRP. 9.5% (19) had been once before. 6.5% (13) had visited the BRP 2 –3 times. 5.5% (11) had visited the BRP 3 – 5 times.

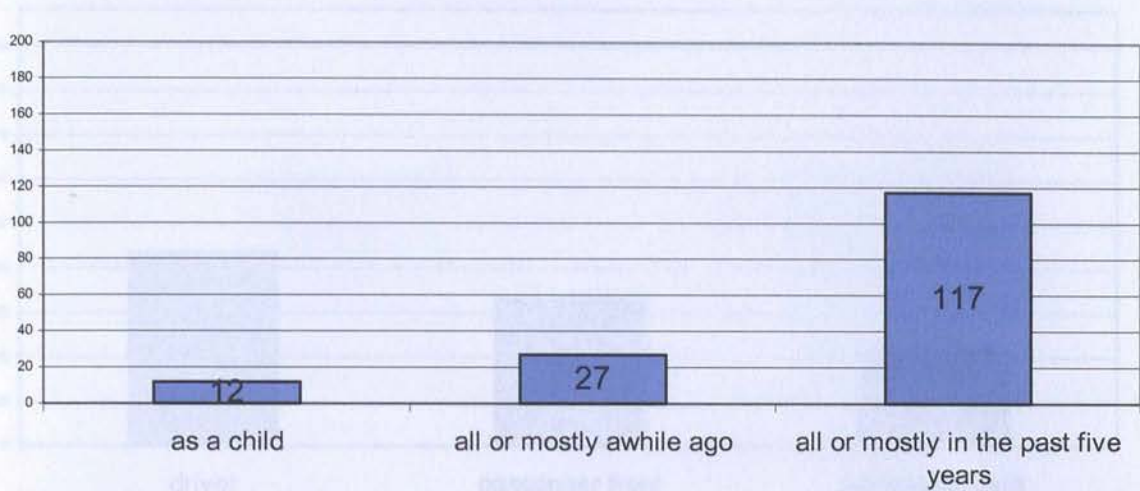
Question 3a - I have driven or been a passenger on the Blue Ridge Parkway:



Q3b Time of previous visits

58.8% (117) respondents had visited the BRP all or mostly within the last five years. 13.6% (27) had visited all or mostly a while ago. 6.0% (12) had visited as a child. The fact that the majority of visits occurred within the recent past would seem to indicate a prevailing satisfaction.

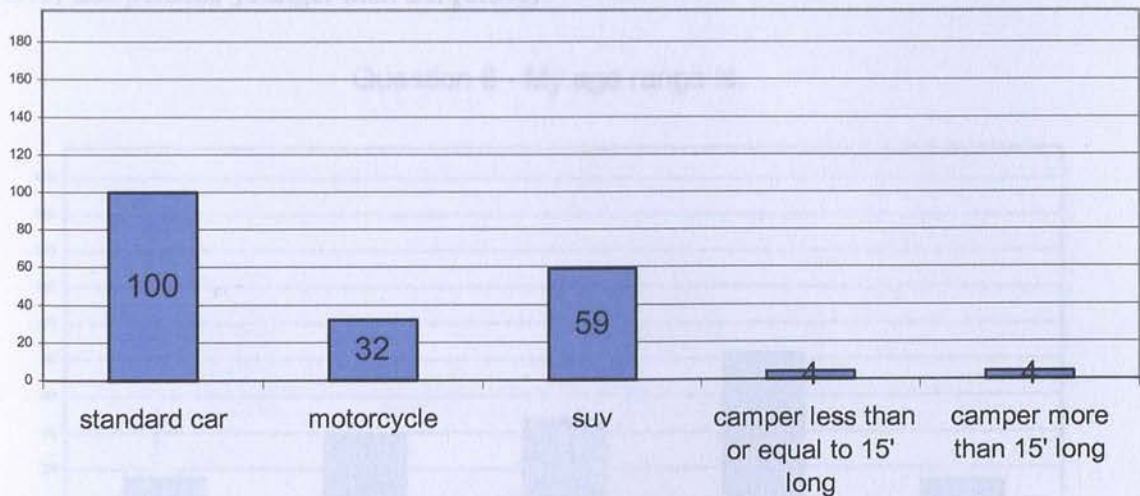
Question 3b - If your answer was 2 - 5 for question 3, were your previous visits:



Q4 Vehicle type

Half of the respondents, 50.3% (100) were travelling in a standard car. 16.1% (32) were travelling on a motorcycle. 29.6% (59) were travelling in a sport utility vehicle (SUV) and the remaining 4% (8) were travelling in campers.

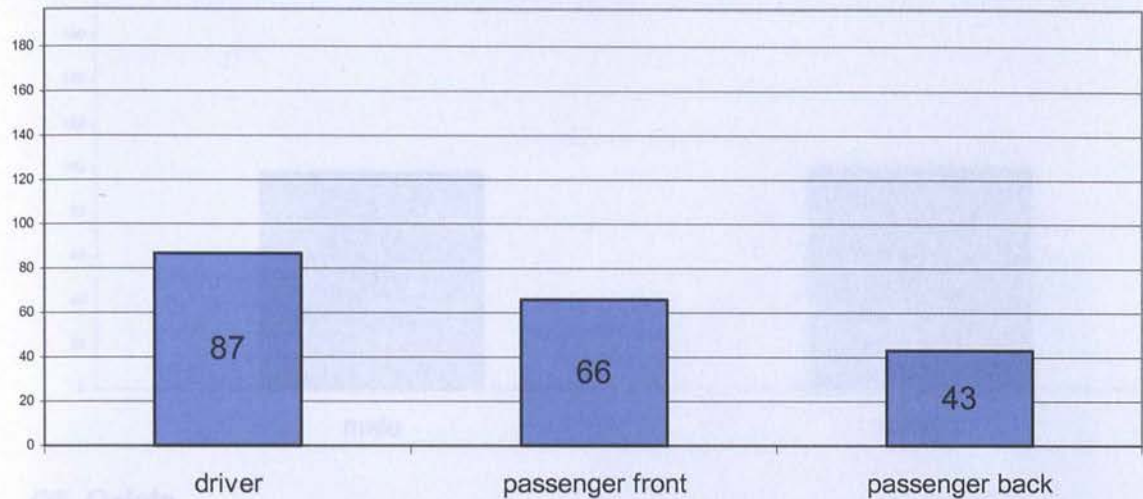
Question 4 - The vehicle I am driving/riding in is a:



Q5 Position in vehicle

The majority of the respondents, (77.4%) were sitting in the front of the vehicle. Nearly half, 44.2% (88) were drivers. 33.2% (66) were front seat passengers. 21.6%(43) were rear seat passengers.

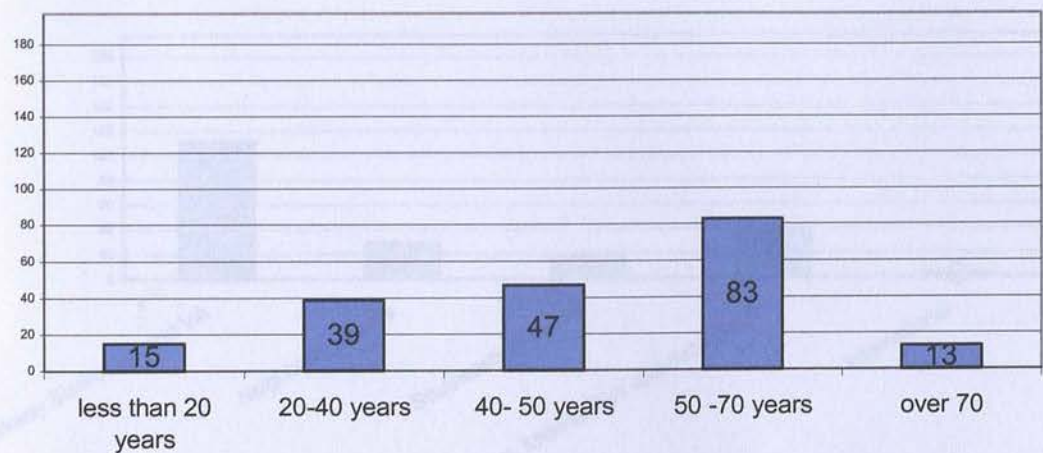
Question 5 - Position in the vehicle:



Q6 Age

A large number of respondents, (41.7%) were in the 50 – 70 age range. It was speculated that many in this age group were retired, travelling for leisure. However, it was found that only 14.6% respondents overall were unemployed. Thus it would seem that a fair number of the 50 – 70 year olds were actively working. The next highest age group, 23.6% was 40-50, followed by the 20 – 30 year olds. The smallest age groups were persons over 70, (7.5%) and persons younger than 20. (6.5%)

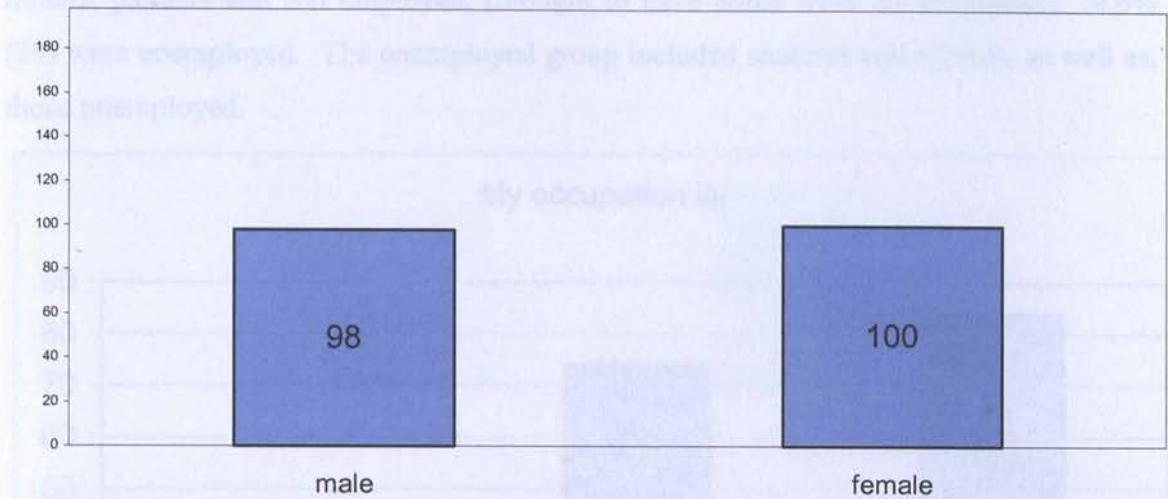
Question 6 - My age range is:



Q7 Gender

Roughly half, 49.2%, (98), of the respondents were male and half, 50.3% (100) were female. (One respondent did not answer this question)

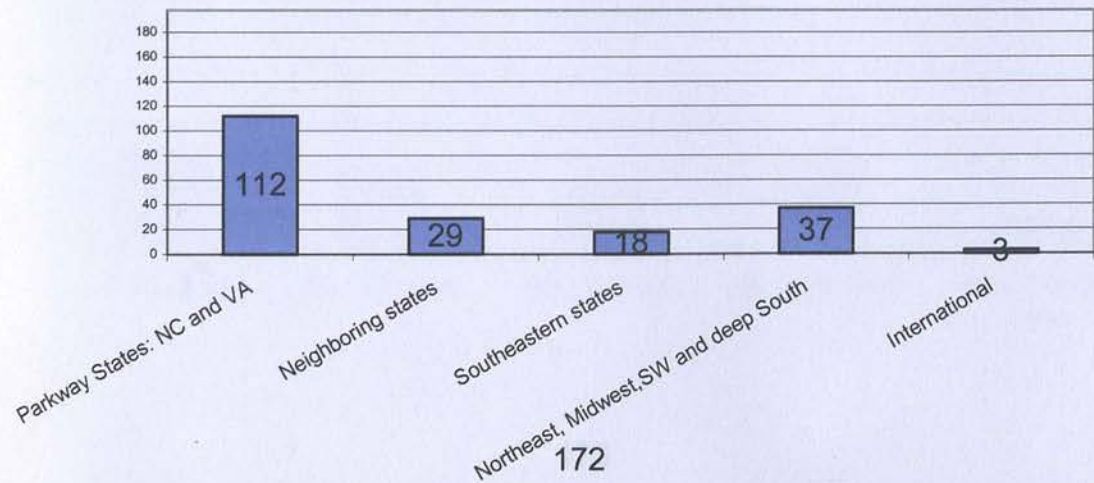
Question 7 - Gender



Q8 Origin

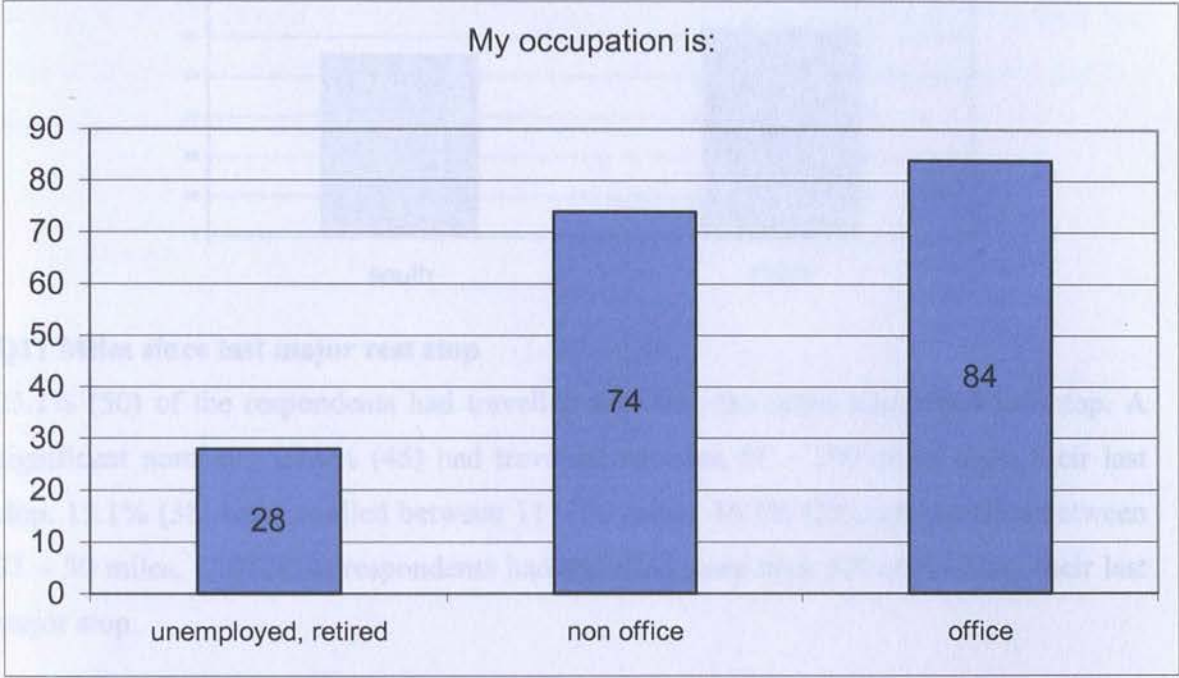
A little more than half, 56.3% (112), of the respondents were from North Carolina or Virginia. Although the BRP travels through these two states, it should be noted that its location is somewhat remote. For example, the BRP is a six hour drive from Wilmington, NC and a four hour drive from the Triangle Research area, (Raleigh, Durham, Chapel Hill, NC). Therefore it could not be assumed that the NC and VA respondents live near to the parkway. 14.1% (29) of the respondents were from a nearby state: TN, WV, MD, SC or Washington, DC. The remaining 27.1% (55) were from Southern, Midwest or Northern states. 2% (3) were from outside the USA, (Canada, South Africa).

Question 8 - I am from:



Q9 Occupation

Many respondents, 42.2% (84) were in office related occupations, (engineers, social and health workers, teachers, loan officers, receptionists) . However, non-office occupations ranked a close second – 37.2% (74). Non office workers included homemakers, farmers, miners, painters and self employed, (thought to have home work environments). 14.6% (29) were unemployed. The unemployed group included students and retirees, as well as, those unemployed.



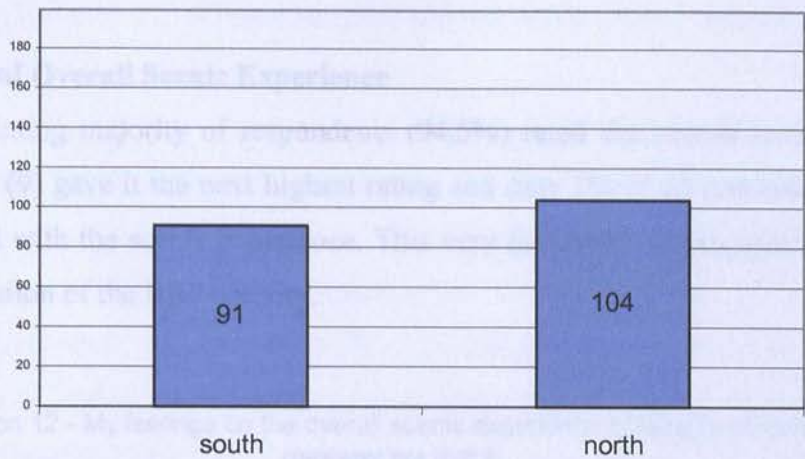
Question 11 - I have driven approximately _____ miles since my last major road trip.



Q10 Direction driving on BRP

52.3% (104) respondents were travelling north on the BRP. 46.2% (91) were travelling south.

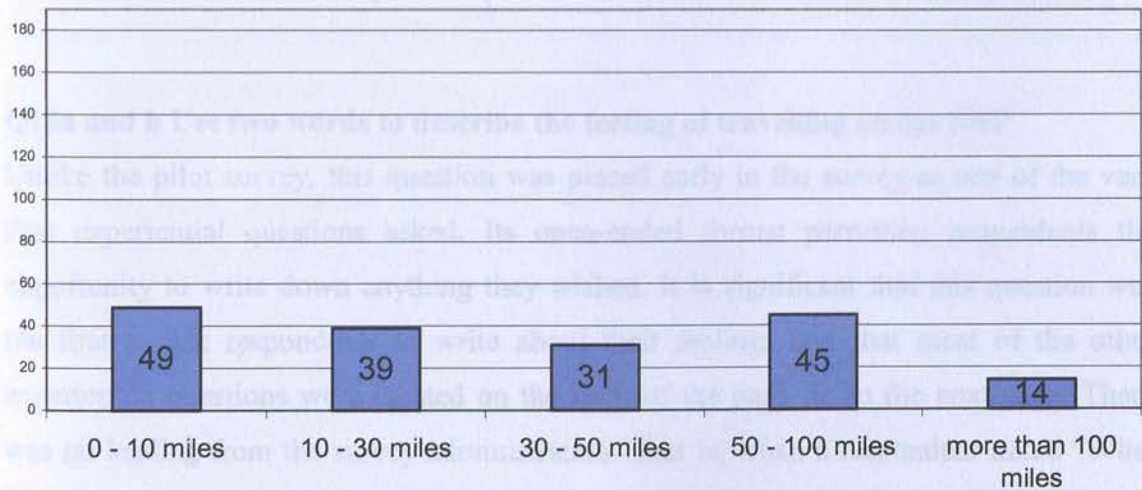
Question 10 - Direction going on the parkway



Q11 Miles since last major rest stop

25.1% (50) of the respondents had travelled less than ten miles since their last stop. A significant number - 22.6% (45) had travelled between 51 – 100 miles since their last stop. 19.1% (38) had travelled between 11 – 30 miles; 16.1% (32) had travelled between 31 – 50 miles. 7.0% (14) respondents had travelled more than 100 miles since their last major stop.

Question 11 - I have driven approximately ____miles since my last major rest stop.



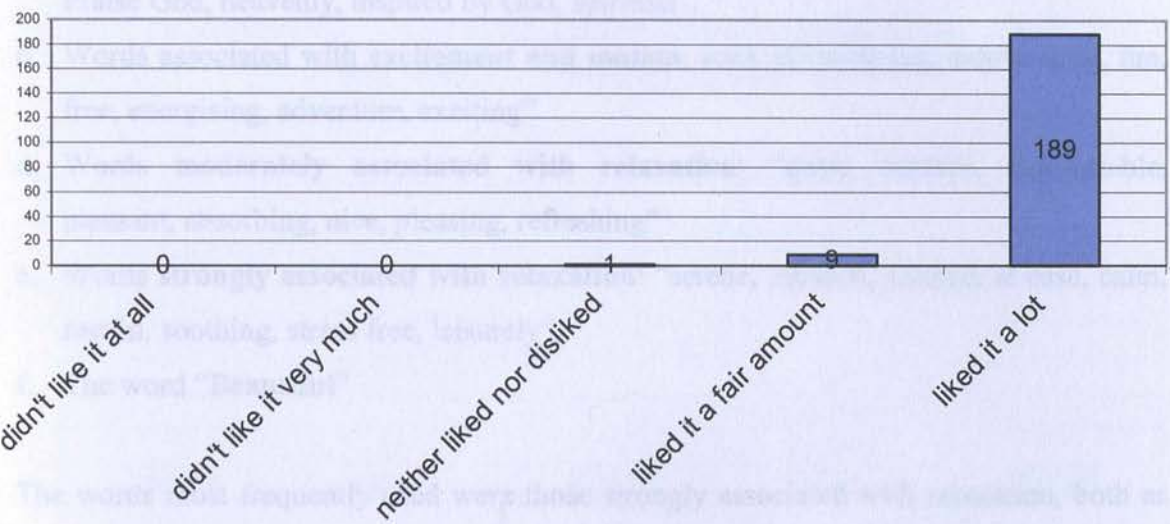
Experiential Questions

Most of the experiential questions were rated on a Likert scale. The options were generally laid out as a range where (1) = lowest and (5) = highest. For ease of understanding, the ratings are described as (a) indicating a rating of 1, (b) which indicates 2, (c) indicating 3, (d) indicating 4, and (e) indicating 5.

Q12 Rating of Overall Scenic Experience

An overwhelming majority of respondents (94,5%) rated the overall scenic experience highly. 4.5% (9) gave it the next highest rating and only 1% of all respondents were less than satisfied with the scenic experience. This very favourable rating seems to point to a keen appreciation of the BRP scenery.

Question 12 - My feelings on the overall scenic experience of today's drive on the parkway are that I:



Q13a and b Use two words to describe the feeling of travelling on the BRP

Unlike the pilot survey, this question was placed early in the survey as one of the very first experiential questions asked. Its open-ended format permitted respondents the opportunity to write down anything they wished. It is significant that this question was the first to ask respondents to write about their feelings and that most of the other experiential questions were located on the back of the page or on the next page. There was no leading from the survey administrators. That is, when a respondent asked “What does this mean” They were told: “This is about your feelings or emotions. Write what you felt while travelling the parkway.”

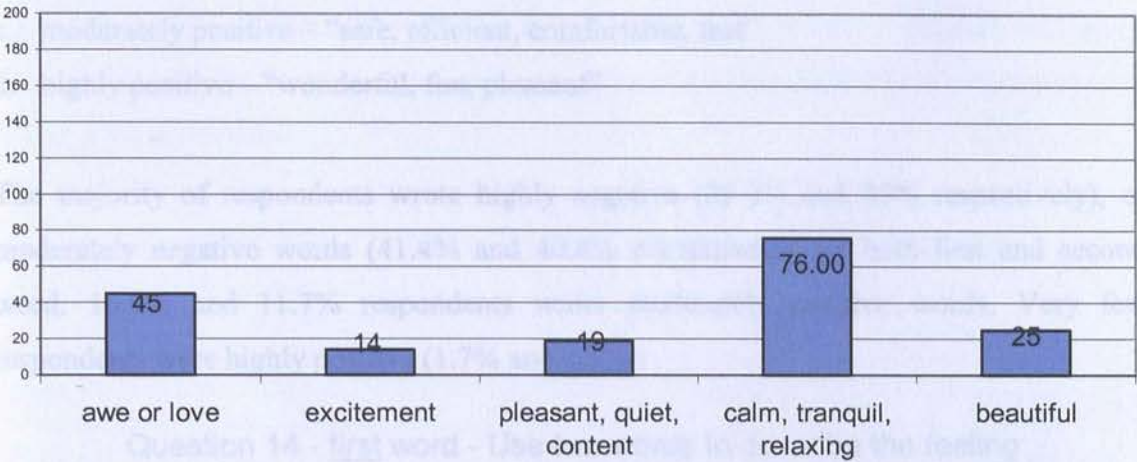
The words were then grouped into five categories. In order to be sure that the groupings were not arbitrary, two other designers - a landscape architect and an architect, were asked to make groupings of all the words. They were told to use their own judgement as to category headings and groupings. After reviewing their groupings, the five categories were changed to six to include the word “Beautiful”. Although beautiful is not a feeling, it was written in by 10.6% of respondents as the first word choice, and 13% as the second word choice.

Word Groupings for the BRP

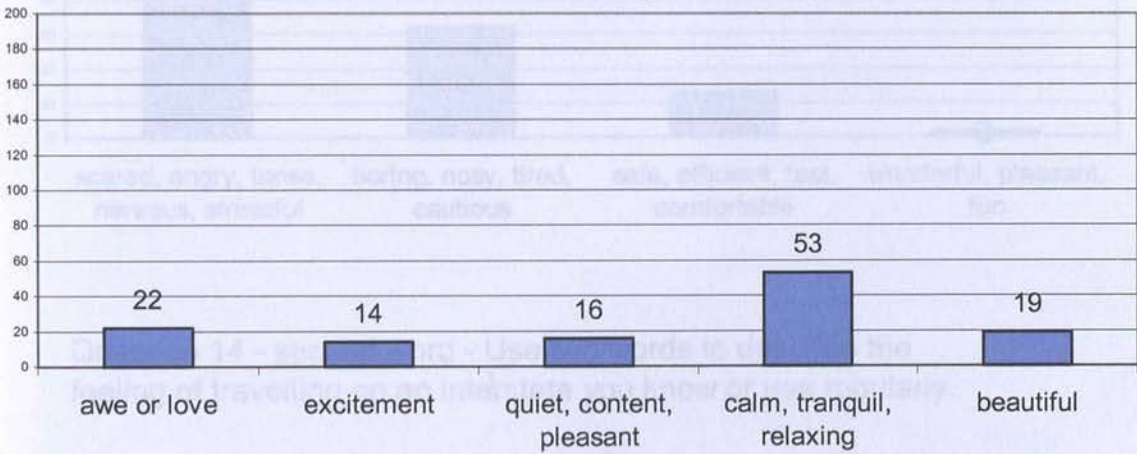
- a. **Negative** words, such as, “scary, boring, tired”
- b. Words associated with **awe or love**, such as “love, awesome, breathtaking, magnificent, overwhelming, indescribable, amazed, inspired”. Additionally words or phrases related to pride and God were put in this category:” grateful, proud, splendid, Praise God, heavenly, inspired by God, spiritual”.
- c. Words associated with **excitement and motion**, such as “waltzing, exhilarating, fun, free, energising, adventure, exciting”
- d. Words **moderately associated with relaxation**: “quiet, content, comfortable, pleasant, absorbing, nice, pleasing, refreshing”
- e. Words **strongly associated with relaxation**: “serene, tranquil, relaxed, at ease, calm, restful, soothing, stress free, leisurely”
- f. The word “**Beautiful**”

The words most frequently used were those strongly associated with relaxation, both as first word (42.9%) and as second word (42.3%). Words associated with awe or love were also popular (27.1% and 15.4 %, respectively). Words moderately associated with relaxation were close in ranking to awe, (12.4% and 16.3% respectively). Words associated with excitement were used by 7.1% and 10.6% of the respondents, respectively. No negative words were written as the first word and only 2.4% of respondents used them as the second word.

Question 13 - First word - Use two words to describe the feeling of travelling on the Blue Ridge Parkway



Question 13 - second word written - Use two words to describe the feeling of travelling on the BRP



Q14 a and b: Words that describe the feeling of travelling an interstate.

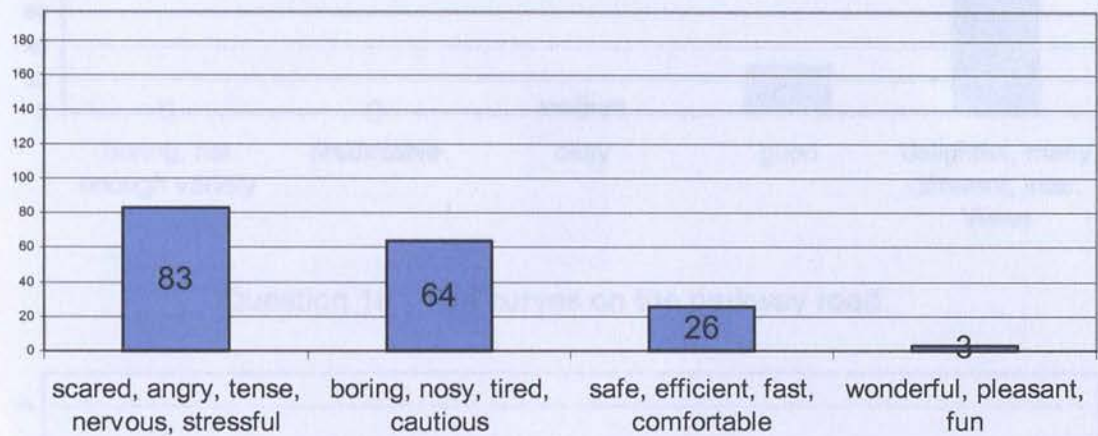
The written responses to this question were almost a direct contrast to those words used for travelling the BRP. These responses appear to reflect a dissatisfaction with interstate travel experience on high speed, high volume roads, shared with commercial vehicles.

Word groups for interstate highways

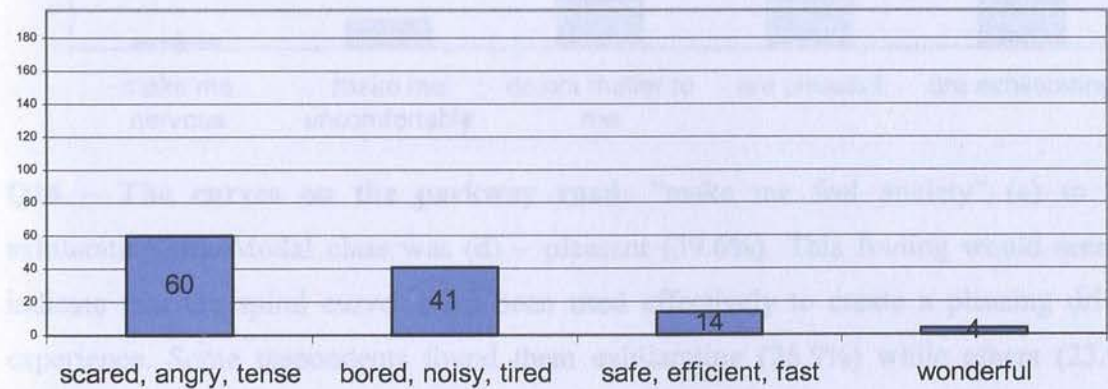
- a. highly negative – “angry, frightening, scary, awful, mad”
- b. moderately negative – “boring, tired, crowded”
- c. moderately positive – “safe, efficient, comfortable, fast”
- d. highly positive – “wonderful, fun, pleasant”

The majority of respondents wrote highly negative (39.8% and 45% respectively), or moderately negative words (41.4% and 40.8% respectively) for both first and second word. 15.5% and 11.7% respondents wrote moderately positive words. Very few respondents were highly positive (1.7% and 2.5%).

Question 14 - first word - Use two words to describe the feeling of travelling on an interstate you know or use regularly.



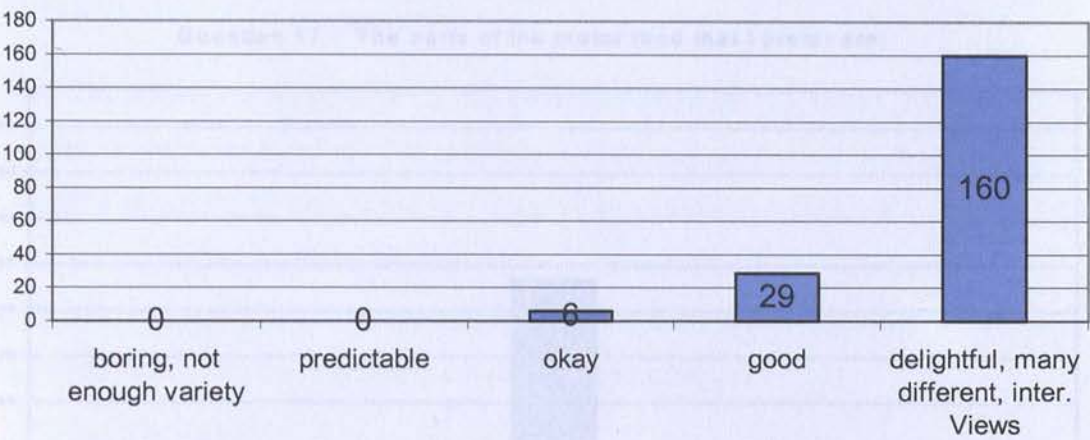
Question 14 - second word - Use two words to describe the feeling of travelling on an interstate you know or use regularly.



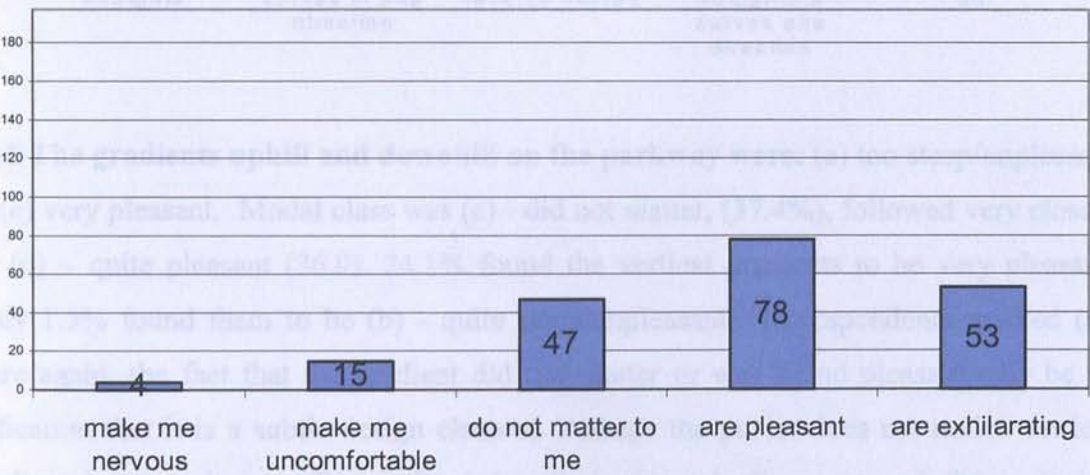
Q15 - I find the variety of scenery along the parkway to be: “boring, not enough variety” (a) to “Delightful, many different and interesting views” (e).

The variety of scenery was found to be delightful by the majority of respondents, modal response was 5 (81.2%). No one rated the variety as 1 and only 1% of all respondents found it 3 - predictable.

Question 15 - I find the variety of scenery along the parkway to be:



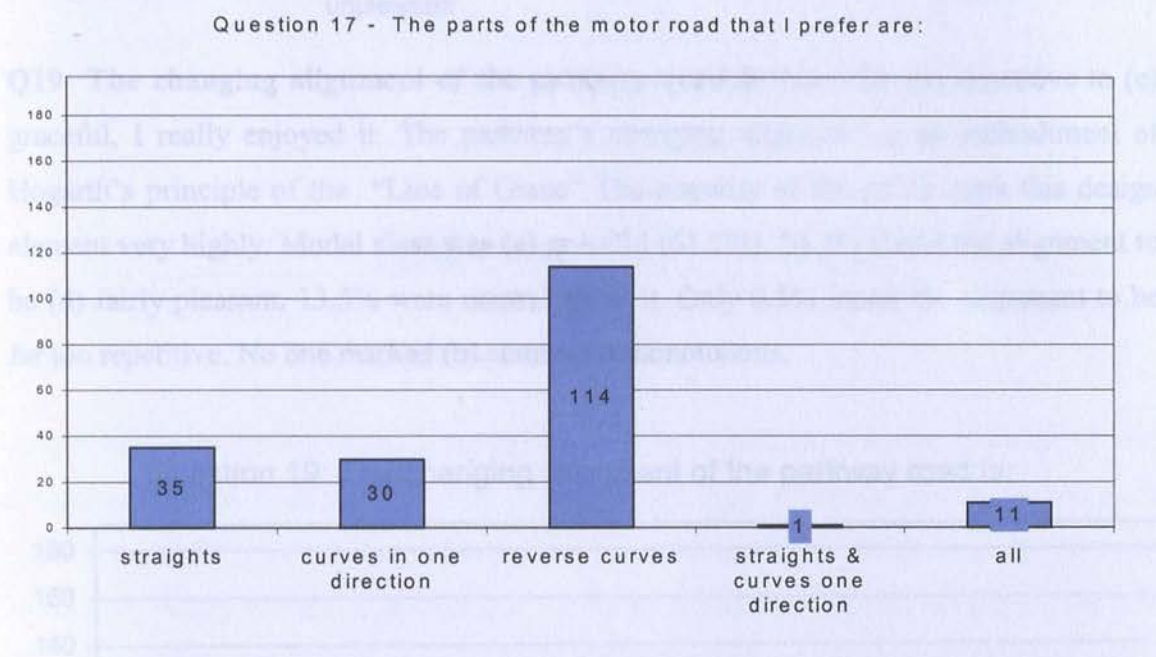
Question 16 - The curves on the parkway road:



Q16 – The curves on the parkway road: “make me feel anxiety” (a) to “are exhilarating”(e). Modal class was (d) – pleasant (39.6%). This finding would seem to indicate that the spiral curves have been used effectively to create a pleasing driving experience. Some respondents found them exhilarating (26.9%) while others (23.9%) indicated that they did not matter—perhaps these respondents had not even noticed the

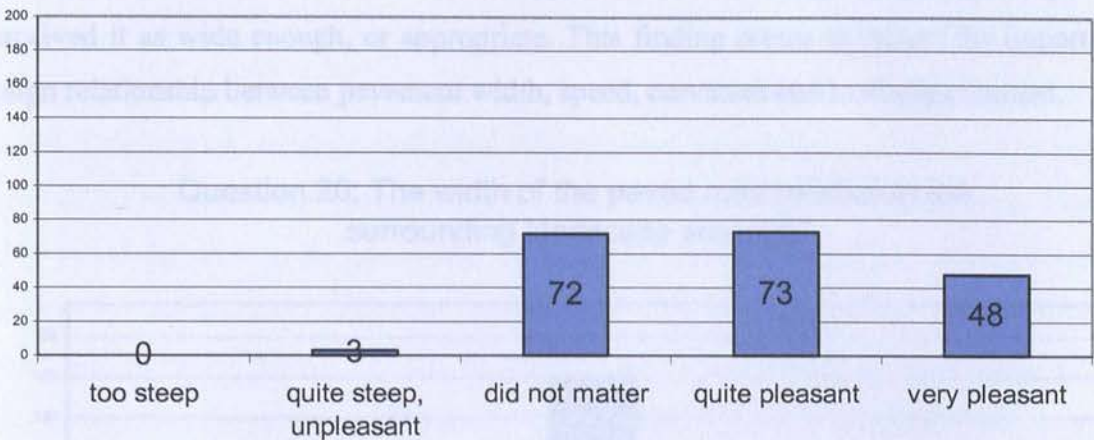
curves which could be a reflection their subtlety. Few people were caused anxiety (2.0%). 7.6% said that the curves made them “uncomfortable but not frightened.”

Q17 – The parts of the motor road that I prefer are: (a) = straights, (b) = curves in one direction, (c) a curve one way linked to a curve in another direction. Modal class was (c) – linked curves (62.4%). The majority of respondents prefer the reverse spiral curves of the parkway motor road. This result is important in that the reverse spirals have been argued to be expressions of the serpentine line. The public seems to agree with Hogarth that winding, serpentine lines are preferable to straight lines or curves in one direction only.



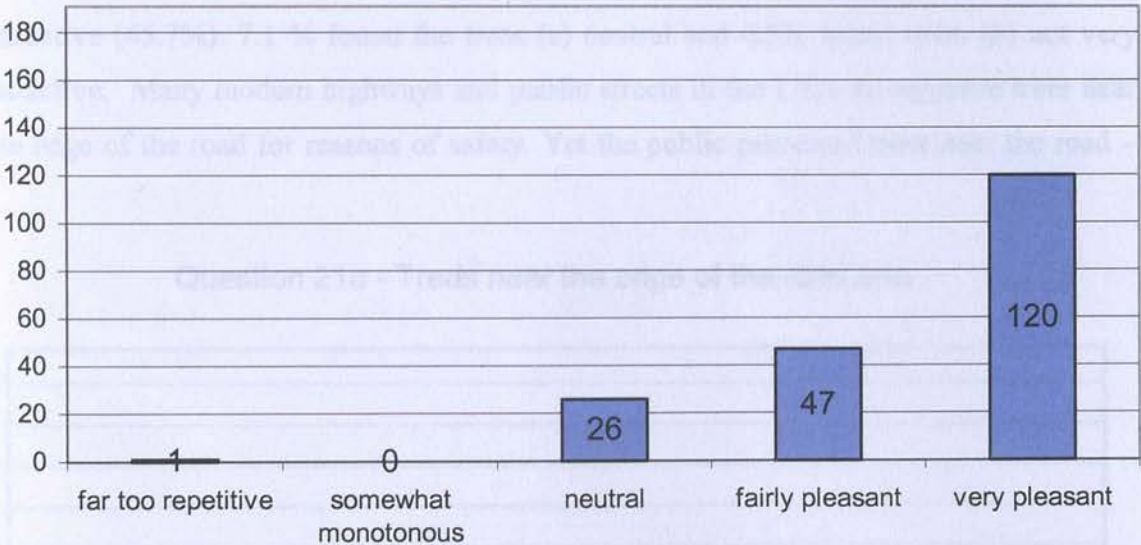
Q18 The gradients uphill and downhill on the parkway were: (a) too steep/unpleasant to (e) very pleasant. Modal class was (c) - did not matter, (37.4%), followed very closely by (d) – quite pleasant (36.9). 24.1% found the vertical gradients to be very pleasant. Only 1.5% found them to be (b) - quite steep/unpleasant. No respondents marked (a). Here again, the fact that the gradient did not matter or was found pleasant may be an indication that it is a subtle design element. Perhaps the public does not notice vertical gradient because it is well coordinated with horizontal alignment and the motoring experience is perceived as unified and fluid. Alternatively, those respondents who were neutral about the vertical gradient may just not have found the vertical alignment very pleasing.

Question 18: The gradients uphill and downhill on the parkway were:



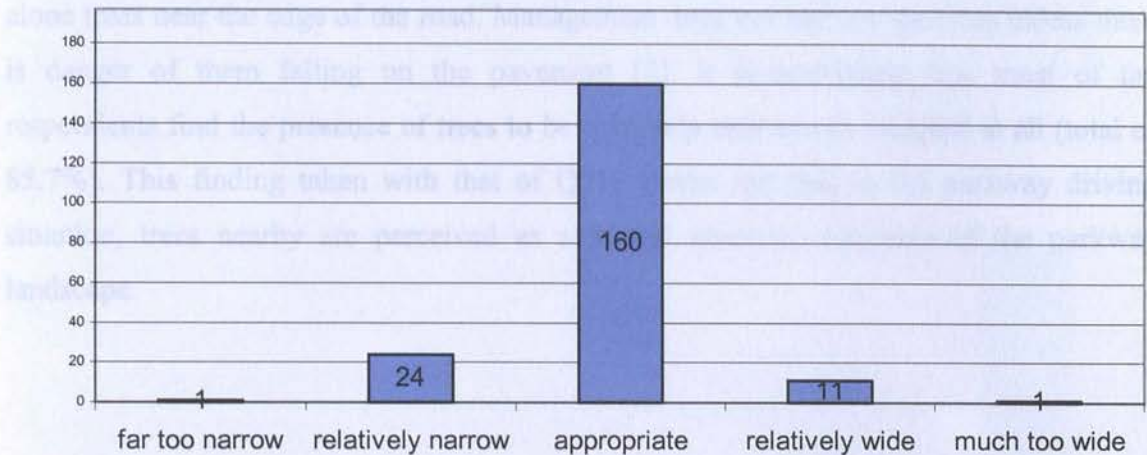
Q19 The changing alignment of the parkway road is: (a) = far too repetitive to (e) graceful, I really enjoyed it. The parkway’s changing alignment is an embodiment of Hogarth’s principle of the “Line of Grace” The majority of the public rank this design element very highly. Modal class was (e) graceful (61.1%). 24.5% found the alignment to be (d) fairly pleasant. 13.5% were neutral about it. Only 0.5% found the alignment to be far too repetitive. No one marked (b) somewhat monotonous.

Question 19: The changing alignment of the parkway road is:



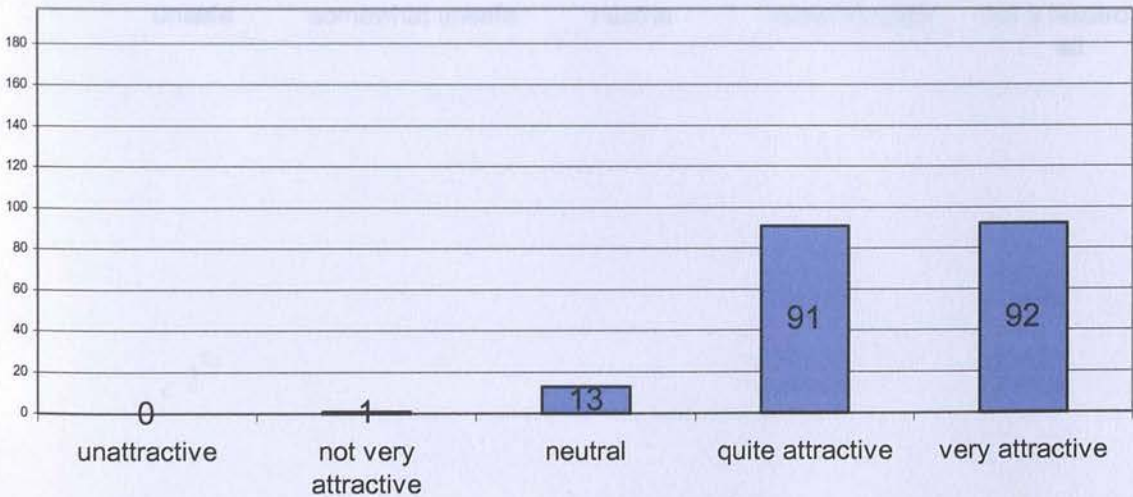
Q20 The width of the paved road relative to the surrounding landscape seemed: (a) = far too narrow to (e) = far too wide. Modal class was (c) – appropriate (80.2%). Although the BRP motor road is narrow by modern road design standards, the public perceived it as wide enough, or appropriate. This finding seems to reflect the important design relationship between pavement width, speed, curvature and landscape context.

Question 20: The width of the paved road relative to the surrounding landscape seemed:



Q21a Attractiveness of trees near the edge of the road: (a) = unattractive to (e) very attractive. Modal class was (e) very attractive (46.7%), followed closely by (d) quite attractive (45.7%). 7.1 % found the trees (c) neutral and 0.5% found them (b) not very attractive. Many modern highways and public streets in the USA do not have trees near the edge of the road for reasons of safety. Yet the public perceived trees near the road –

Question 21a - Trees near the edge of the road are:

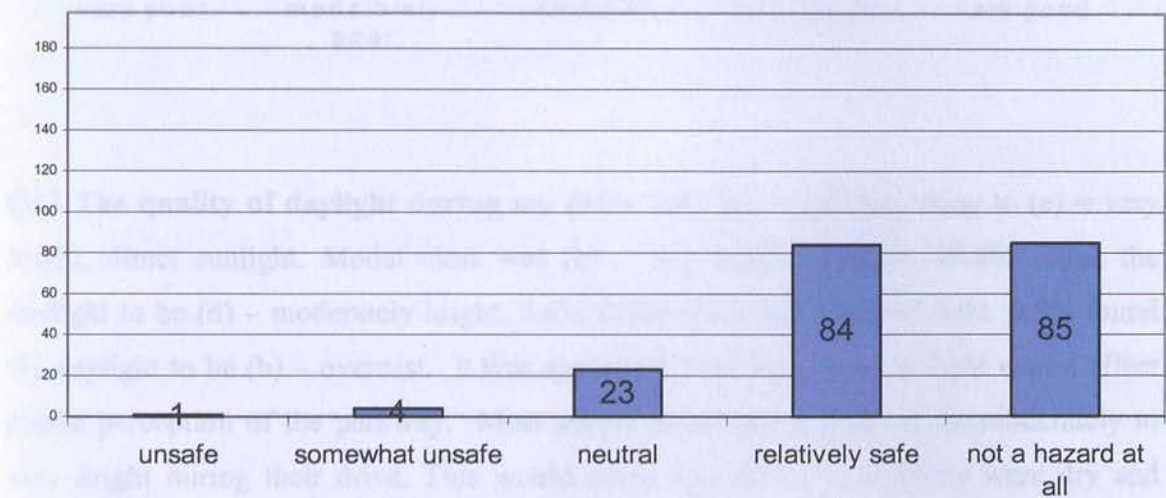


which, in the case of the BRP, may even overhang or canopy the road - to be very attractive.

Q21b Safety of trees near the edge of the road: (a) = unsafe to (e) = not a hazard at all.

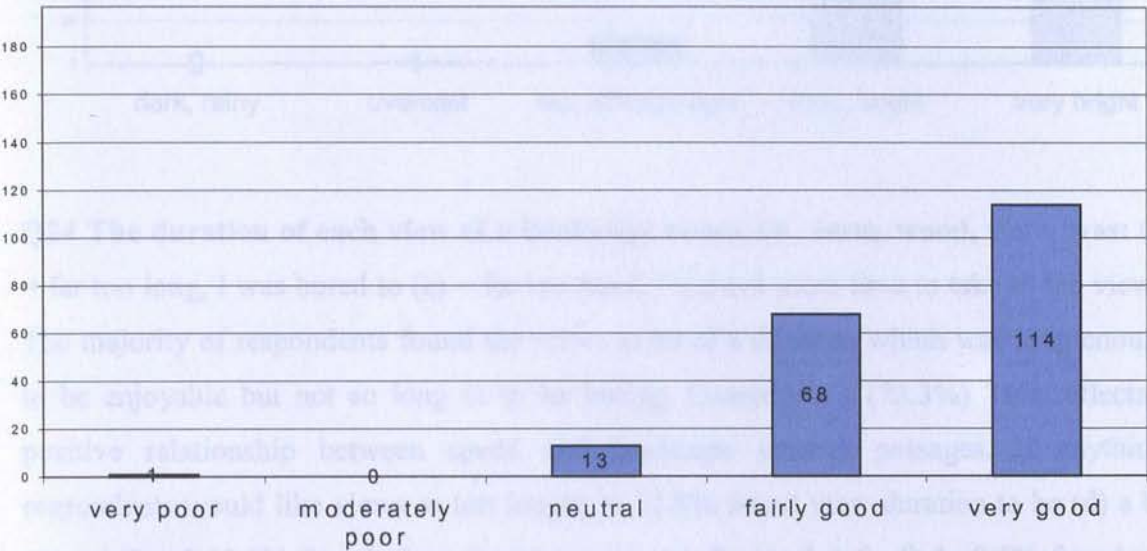
Modal class was (d) relatively safe, (43.1%) followed closely by (e) not a hazard at all. (42.6%) 11.7% found the trees (c) neutral and 2.0% found them (b) somewhat unsafe. 0.5% found the trees to be (a) unsafe. The original design of the BRP called for stand alone trees near the edge of the road. Management does not remove the trees unless there is danger of them falling on the pavement [5]. It is interesting that most of the respondents find the presence of trees to be relatively safe or not a hazard at all (total of 85.7%). This finding taken with that of Q21b points out that in the parkway driving situation, trees nearby are perceived as safe and attractive elements of the parkway landscape.

Question 21b Trees near the edge of the road appear to be:



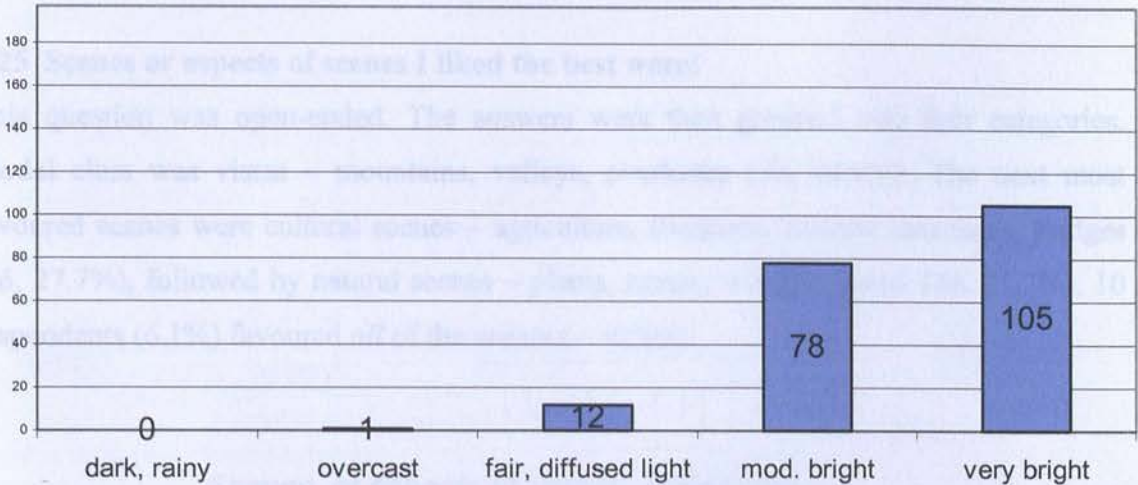
Q22 The fit of the road to the terrain was: (a) = very poor, the road was an imposition on the land, to (e) = very good, it seemed to fit like a glove with surrounding topography. Modal class was (e) – very good. (57.3%) Next highest category was (d)- fairly good. (34.7%). 6.6% of respondents were neutral and the remaining 0.5% found road fit to be (a) very poor. The BRP designers were concerned that the road would scar the landscape and appear to be an intrusion upon the setting. [6]. In 2002, the public finds the road to fit the terrain.

Question 22 - The "Fit" of the road to the terrain was:



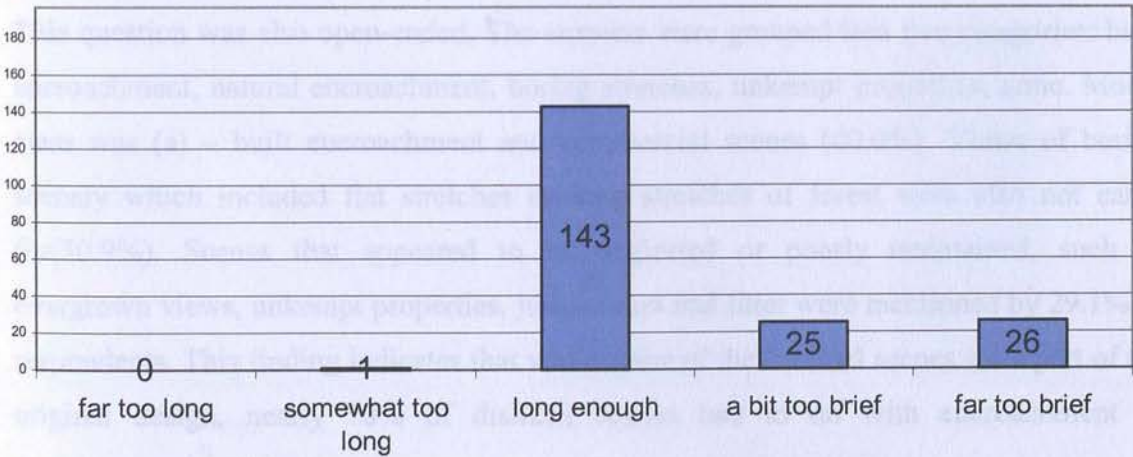
Q23 The quality of daylight during my drive was: (a) = overcast, rainy to (e) = very bright, direct sunlight. Modal class was (e) – very bright (54.1%). 39.8% found the daylight to be (d) – moderately bright. 5.6% found it (c) fair, diffused light. 0.5% found the daylight to be (b) – overcast. It was speculated that the quality of light would affect public perception of the parkway. Most people found the daylight to be moderately to very bright during their drive. This would mean that driving conditions were dry and visibility was good. Perception might have been quite different on overcast or rainy days.

Question 23 - The quality of daylight during my drive was:



Q24 The duration of each view of a landscape scene, i.e., farm, wood, vista, was: (a) = far too long, I was bored to (e) = far too brief, I wanted more time to take in the views. The majority of respondents found the views to be of a duration which was long enough to be enjoyable but not so long as to be boring. Category c - (73.3%) This reflects a positive relationship between speed and landscape scenery passages. If anything, respondents would like views to last longer as 12.8% found view duration to be (d) a bit too brief and 13.3% found view duration to be (e) far too brief. Only 0.5% found the duration to be (b) somewhat too long.

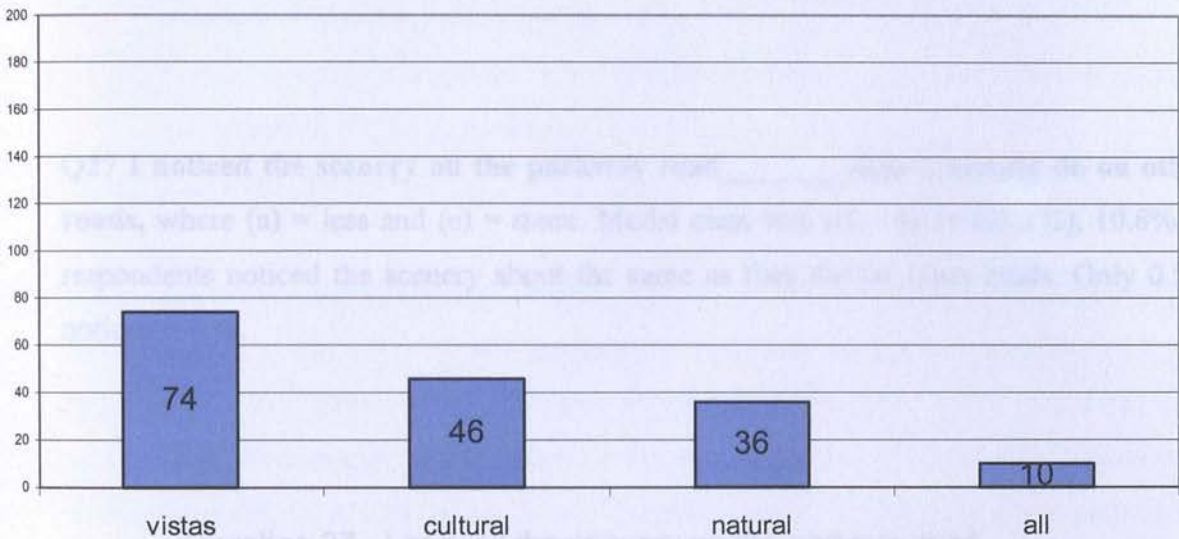
Question 24 - The duration of each view of a landscape scene was:



Q25 Scenes or aspects of scenes I liked the best were:

This question was open-ended. The answers were then grouped into four categories. Modal class was vistas – mountains, valleys, overlooks (74, 44.6%). The next most favoured scenes were cultural scenes – agriculture, livestock, historic structures, bridges (46, 27.7%), followed by natural scenes – plants, nature, wildlife, water (36, 21.7%). 10 respondents (6.1%) favoured *all* of the scenery – variety.

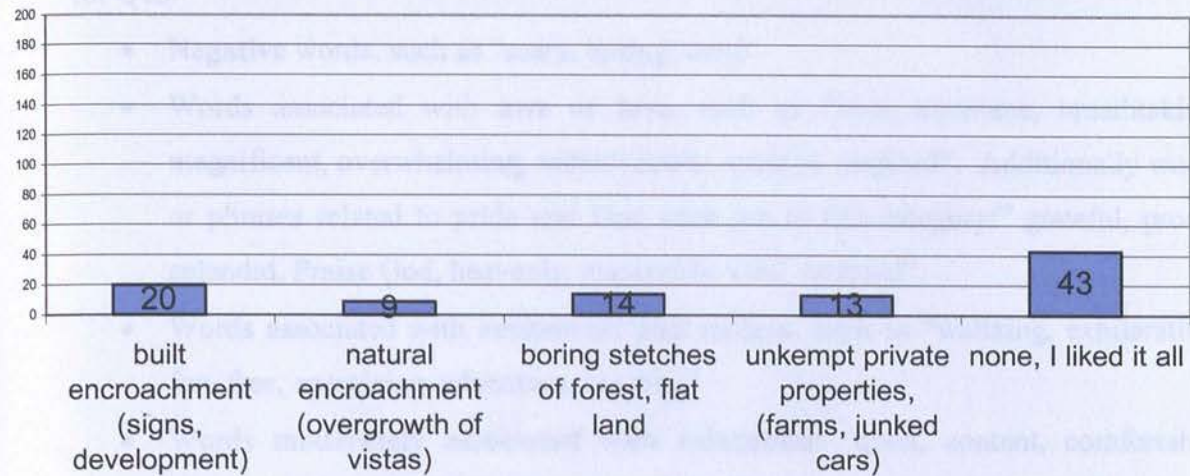
Scenes, or aspects of scenes, I liked best



Q26 Scenes or aspects of scenes I cared for the least were:

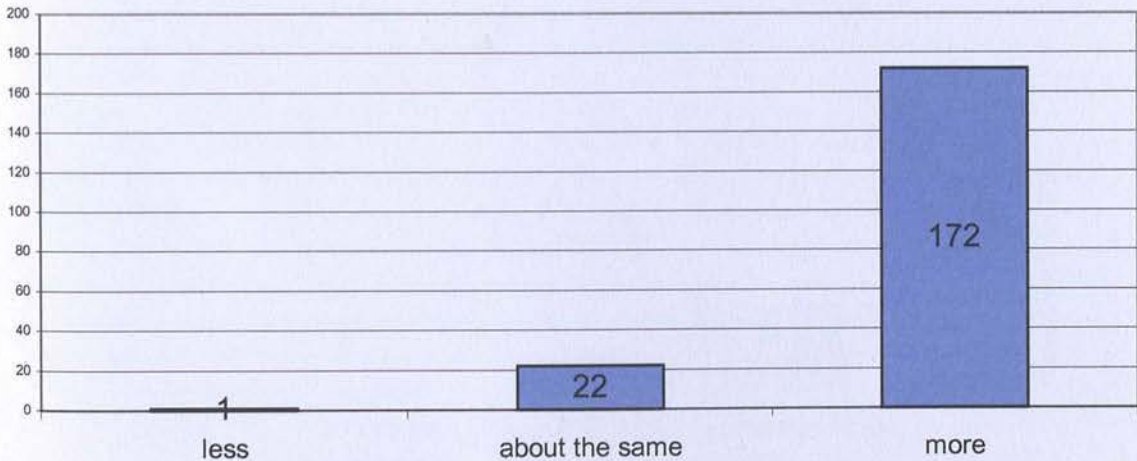
This question was also open-ended. The answers were grouped into five categories: built encroachment, natural encroachment, boring stretches, unkempt properties, none. Modal class was (a) – built encroachment and commercial scenes (40.0%). Views of boring scenery which included flat stretches or long stretches of forest were also not cared for (30.9%). Scenes that appeared to be neglected or poorly maintained, such as overgrown views, unkempt properties, junked cars and litter were mentioned by 29.1% of respondents. This finding indicates that while some of the disliked scenes were part of the original design, nearly 70% of disliked scenes had to do with encroachment or maintenance.

Question 26- Scenes, or aspects of scenes, I cared for the least were:



Q27 I noticed the scenery on the parkway road _____ than I usually do on other roads, where (a) = less and (c) = more. Modal class was (c) – more (88.1%). 10.8% of respondents noticed the scenery about the same as they did on other roads. Only 0.5% noticed it less.

Question 27 - I noticed the scenery on the parkway road _____ than I usually do on other roads.



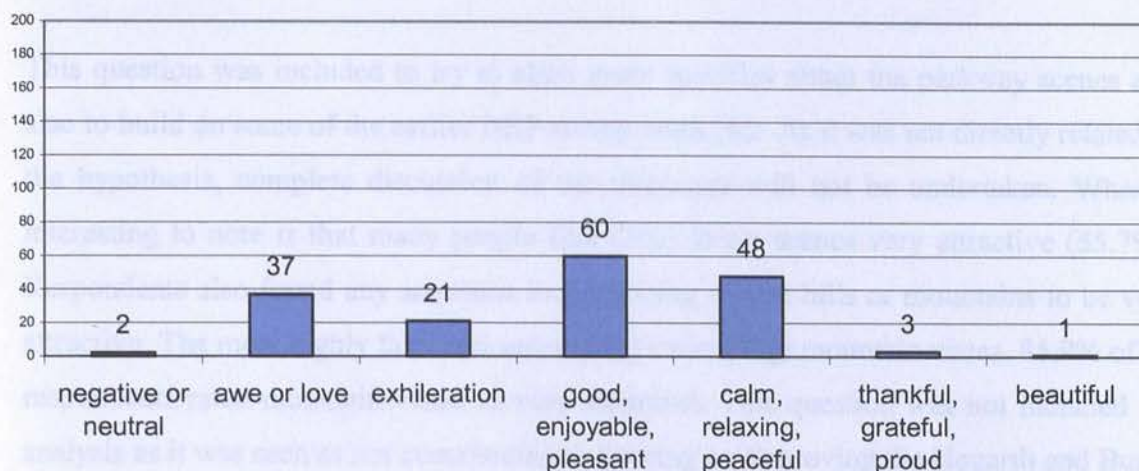
Q28 Describe the overall feeling of driving on the parkway.

This question was open-ended. Answers were grouped into the same categories as those for Q13.

- **Negative** words, such as “scary, boring, tired”
- Words associated with **awe or love**, such as “love, awesome, breathtaking, magnificent, overwhelming, indescribable, amazed, inspired”. Additionally words or phrases related to pride and God were put in this category:” grateful, proud, splendid, Praise God, heavenly, inspired by God, spiritual”.
- Words associated with **excitement and motion**, such as “waltzing, exhilarating, fun, free, energising, adventure, exciting”
- Words **moderately associated with relaxation**: “quiet, content, comfortable, pleasant, absorbing, nice, pleasing, refreshing”
- Words **strongly associated with relaxation**: “serene, tranquil, relaxed, at ease, calm, restful, soothing, stress free, leisurely”
- The word “**Beautiful**”

Responses confirmed the findings for Q13, that the prevailing feeling is one of relaxation. Modal category was (c) – words moderately related to relaxation (36.2%). This was followed by (d) – words strongly related to relaxation (27.6%). Words associated with awe or love (b) comprised 21.8% of the responses. 11.5% of the words were associated with excitement, (c) 6% of the words were negative and 2.3% of respondents wrote in the word “beautiful”.

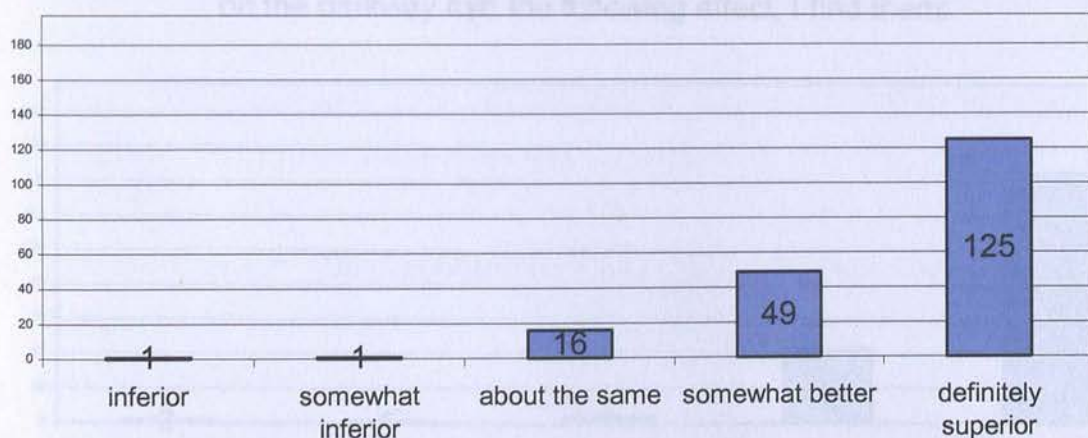
Question 28 - Describe the overall feeling of driving/riding the parkway:



Q29 Compared with other roads I drive on a regular basis, I would rate this driving experience as: (a) = inferior and (e) = definitely superior.

Most respondents find the BRP driving experience superior to that of other roads (63.7%). 25.4% of respondents found the road to be (d) somewhat better. 9.8% found it to be (c) about the same as other roads they drive. 0.5% rated the BRP driving experience as (b) somewhat inferior and 0.5% ranked it as (a) inferior.

Question 29 - Compared to other roads I drive on a regular basis, I would rate this driving experience as:

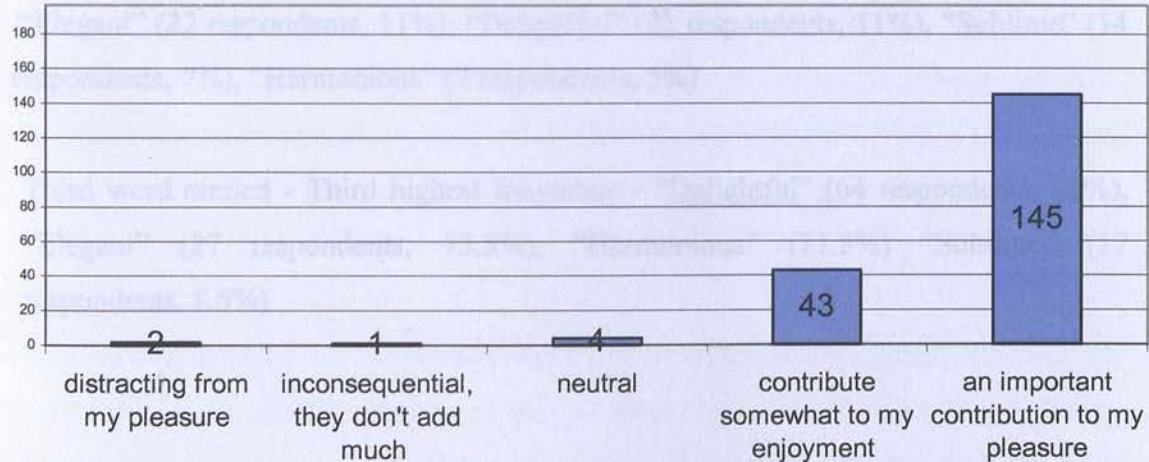


Q30 Rate the following parkway scenes by circling the appropriate number: where (a) = very unattractive and (e) = very attractive Scenes included : 30a – open fields;30b- open fields, farm buildings and farm animals; 30c – woods; 30d – distant hills or small mountains; 30e – sequences that combine fields and distant hills; 30f- sequences that combine fields, woods and distant hills; 30g – mountain vistas.

This question was included to try to elicit more specifics about the parkway scenes and also to build on some of the earlier BRP survey work [6]. As it was not directly related to the hypothesis, complete discussion of the responses will not be undertaken. What is interesting to note is that many people find (30c) forest scenes very attractive (55.7%). Respondents also found any sequence incorporating distant hills or mountains to be very attractive. The most highly favoured scenery type was (30g) mountain vistas. 85.9% of all respondents rated mountain vistas as very attractive. This question was not included for analysis as it was seen as not contributing to proving or disproving the Hogarth and Burke positions. For the same reason, charts are not included.

Q31 The colours and textures of the various plants I see on the parkway had the following effect: (a) = I find them distracting from my pleasure to (e) = they are an important contribution to my pleasure. Modal class was (e) (74.4%). 22.1% of respondents circled (d), plants contribute somewhat to my enjoyment of the scenery. 2.1% were (c) neutral. 0.5 found plants to be (b) inconsequential and 1.0% found the plants to be (a) distracting. These responses indicate that plants play an important role in the motorist’s perception and pleasure.

Question 31 - The colors and textures of the various plants I see on the parkway had the following effect, I find them:



Q32 Broad, open views, such as fields and vistas, are: (a) = bland and boring, (b) = somewhat bland and boring (c) = neutral, (d) = somewhat pleasant and calming (e) = pleasant, calming and give a sense of relaxation and repose. Modal class was (e) (69.3%). 21.6% circled (d); 6.0% were neutral. 1% circled (b) and no one circled (a).

On reviewing the phrasing of the question it was felt that the answer options were ambiguously worded and that the results did not contribute to proving or disproving the hypothesis. Therefore it was not included in statistical analysis tests.

Q33 Circle up to 5 words that best describe the Blue Ridge Parkway:

Thirty words were given. Some of the words were taken from the Hogarth's or Burke's texts. These were: (1) "beautiful"; (2) "graceful"; (3) "sublime"; (4) "elegant"; (6) "delightful"; (7) "harmonious"; (8) "variable"; (10) "serpentine"; (12) "pleasing"; (14) "mysterious". Other words had a negative connotation: (16) "disjointed"; (17) "chaotic"; (19) "ugly; (21) dull. For a full list of the words and the order in which they occur, see Appendix Two – Survey Questionnaire.

The frequencies for the words were:

- First word circled - Highest frequency - "Beautiful" (185 respondents, 93%); "Delightful" (3 respondents, 1.5%), "Imaginative" (2 respondents, 1%)
- Second word circled - Second highest frequency - "Graceful" (111 respondents, 56%) "Elegant" (22 respondents, 11%); "Delightful" (22 respondents, 11%), "Sublime" (14 respondents, 7%), "Harmonious" (7 respondents, 5%)
- Third word circled - Third highest frequency - "Delightful" (64 respondents, 32%), "Elegant" (27 respondents, 13.5%), "Harmonious" (11.5%) "Sublime" (17 respondents, 8.5%)

- Fourth word circled - highest frequency - “Harmonious” (39 respondents, 19.5%), “Delightful”, (37 respondents, 18.5%) “Pleasing” (32 respondents, 16%), “Gentle” (27 respondents, 13.5%), “Serpentine” (11 respondents, 5.5%)
- Fifth word circled - highest frequency - “Pleasing” (78 respondents, 39%), “Harmonious” (18 respondents, 9%)

Some negative words were circled: “predictable”, “switchback”, “aggressive”. “awkward” . Frequencies for these words were minimal – usually 1 respondent, never more than 2)

The location of the positive words in the beginning of the list and the negative words at the end of the list may have affected the answers for Q33.

8.6 Survey Analysis And Interpretation

8.6.1 Experiential Evidence related to Hogarth’s and Burke’s Positions

Hogarth’s Position

Hogarth’s theory was based on the serpentine “Line of Grace” as a structuring feature for successful composition. The “Line of Grace” is three dimensional, it waves both horizontally and vertically. Although Hogarth draws the line in multiple examples, it is usually invisible. It is the waves in the air that the patterns of the minuet make, or the line from the slightly bent head through the bent knees of a curtsy. If the line is not visible then the viewer may be unaware of it. However, according to Hogarth, it affects the entire composition. The questions (Q16 – 19) having to do with Hogarth’s position on the serpentine line are related to alignment, vertical gradient and curves. One would expect variety (Q15) to be more noticeable than the” Line of Grace” and to have an impact on the overall motoring experience. Hogarth believed that variety ought be appropriate and various elements must fit into the harmony of the overall composition. Thus fitness is a factor this assessment. Questions having to do with fitness are Q20 and Q22 (width of the road relative to its surroundings, fit of the road to the terrain).

Burke’s Position

Burke’s theory is based on the connection of emotion to beauty. Burke claimed that relaxation or languor and the emotion of love are associated with the beautiful. Questions most related to emotion are Q13 (Describe the overall feeling of travelling on the BRP)

and Q28 (Describe the overall feeling of driving/riding on the BRP). Both variables were nominal with no order of magnitude associated with them, Thus they did not lend themselves to many types of statistical analysis. Q12 and Q29 were less directly related to emotion but asked the respondent to rate the experience on a Likert scale, allowing for statistical analysis. Burke also claimed that variety is important but thought that it ought to be smoothly transitioned variety - change should not be abrupt or awkward. Q15 and Q24 get at these points, (variety and duration of view)

Burke argues that there is a “species of motion more relaxing than rest” and that this gentle oscillating motion is conducive to perception of beauty. Questions that lent themselves to analysis of motion and perception of beauty are: Q18, Q19, Q29 (vertical gradient, changing alignment, overall rating of the BRP experience)

Hogarth and Burke

Both Hogarth and Burke agreed upon variety as a vital constituent to beauty. They also agreed that motion is important. Motion is inherent in the serpentine line, and when the line is *in* motion, as in dance, it is most graceful. Gentle motion, according to Burke’s, theory, promotes a positive perception of one’s surroundings. Questions related to variety and motion are noted above. The point is that both theorists believe variety and motion are crucial to beautiful design.

Pearson’s chi square statistical tests were carried out on the variables associated with the theories, described above, and on some of the demographic variables. SPSS (Statistics Program for the Social Sciences – Version 11.5) was used to perform the tests. Where cells had less than the necessary count of 5, the Chi square was unreliable. In such cases a Fisher’s exact test was automatically carried out by the SPSS programme. As the survey data indicates, there were often few negative responses to experiential questions. This creates some problems for statistical analysis as it is harder to interpret meaningful results when the data does not show variance across the full spectrum of possible values. This makes it harder to discern which factors are discriminating between one response and another). However, it was felt carrying out a basic test, such as Pearson’s chi square, might provide some insights into the relationships between variables. First it was necessary to collapse variable categories, from five to three, or sometimes two, in order to obtain an adequate number of cases (more than 5) for the chi square test. (See Appendix Two for Chi Square Tables)

The Serpentine “Line of Grace”

- Alignment and rating of driving experience

The Chi square test indicated a highly (.005) relationship between Q19 alignment and Q29 overall driving experience. Categories for both sets of data were collapsed . Revised Q19 categories were: (1) = neutral or somewhat monotonous; (2) = fairly pleasant; (3) = graceful, I really enjoyed it. Revised Q 29 categories were : (1) about the same or somewhat better; (2) definitely superior. There was a positive correlation between graceful alignment and rating the driving experience as superior People who found the alignment neutral or somewhat monotonous rated the driving experience lower.

$$\chi^2 = 14.962, df = 4, p \leq .005$$

- Alignment and noticing the scenery

Fisher's exact test revealed a significant relationship (.013) between Q19, the changing road alignment, and Q27, noticing the scenery. Categories for both sets of data were collapsed as follows. Q19 categories were: (1) = neutral or somewhat monotonous; (2) = fairly pleasant; (3) = graceful, I really enjoyed it. Q27 categories were: (1) = about the same; (2) more. There was a positive correlation between graceful alignment and noticing the scenery more.

$$\chi^2 = 8.685, df = 2, p \leq .013$$

- Alignment and direction

The Chi square test indicated a highly significant relationship (.003) between Q11, Direction driving on the BRP, and Q19, alignment. Persons driving south rated the alignment higher than persons driving north. More specifics related to which sections of the BRP had been driven would be useful in future surveys.

$$\chi^2 = 11.707, df = 2, p \leq .003$$

Emotional response to the BRP

The data for Q13 indicated that the two words most frequently used by respondents to describe the feeling of travelling on the BRP were related to **relaxation or calmness**, (42.9% - first word, 42.3% second word); and **love or awe** (27.1% - first word and 15.4% - second word). Question 33 asked respondents to circle up to 5 words that best describe the BRP. A very high number of respondents (93%) circled “**beautiful**” as the first word. It is important to note that “beautiful” was listed as the first word of

a list of 30, which may have predisposed respondents to circle it first. However, this was the highest frequency of any of the thirty words, and almost double the frequency of the second most circled word, “graceful” (56%). Even if we treat the ‘beautiful’ response as flawed, a case can be made that most respondents rated the BRP as beautiful, and that many also found the BRP relaxing. A significant number of respondents said that they loved the BRP. This data appears to support Burke’s position that calmness and love are associated with beauty, although the ‘awe’ response would relate it to the sublime as well as the beautiful.

Variety

- Rating of scenic experience and variety

The Chi square test found a highly significant relationship (.000) between Q12, overall scenic experience, and Q15, variety. $\chi^2=27.108$, $df = 2$, $p \leq .000$

The same chi square test found a highly significant relationship between Q29, driving experience, and Q15, variety (.001). These two results indicate support for Hogarth’s (and Burke’s) positions on variety as a key constituent of beauty.

$\chi^2=13.058$, $df = 2$, $p \leq .001$

Variety was *not* found to have a significant relationship with preferred parts of the motor road. $\chi^2=3.661$, $df = 4$, $p \leq .454$ nor with curves. $\chi^2=5.314$, $df = 4$, $p \leq .274$

Motion

The Chi square test carried out on collapsed data for Q18 and Q29 found a highly significant (.003) relationship between vertical gradient and overall rating of the BRP. The superior rating of the experience was associated with very pleasant vertical gradient. This result lends support to Burke’s theory that gentle up and down motion is conducive to positive perception. However, a more specific question related to beauty in conjunction with oscillating motion would be preferred to make a strong connection between motion and beauty.

$\chi^2=15.153$, $df = 2$, $p \leq .001$

Fitness

The Chi square test on collapsed data for Q22 and Q29 found a highly significant relationship (000) between fit of the road to the terrain and overall rating of the BRP. This would seem to indicate public support for Hogarth's principle of fitness, at least that aspect of fitness that has to do with the road's relationship with the topography.

$$\chi^2=17.093, df=2, p \leq .000$$

Factor Analysis on Experiential Data

Factor analysis shows where variables are highly correlated among themselves, (perhaps because of a factor in common that explains both), and distinguishes between different groups under the new factor structure. Factor analysis reduces the data from a large number of variables to "a small number of factors that explain most of the variance observed in the larger number of variables." [8] Factor analysis was considered useful for this thesis as a statistical test that it might reveal relationships among variables that had not been considered in developing the hypothesis.

The experiential part of the questionnaire was factor analysed using uncollapsed categories of ordinal scale data. Ordinal scale data where levels are ranked, (i.e. very poor to very good or far too narrow to far too wide) is best suited for factor analysis. Questions 13, 14, 25, 26, 28 and 33 were excluded from the analysis as they were nominal scale variables (fill in the blank or choose a word). Q32 had already been discarded for its ambiguous wording. Q30 was discarded as not being appropriately relevant to the hypothesis.

From the remaining list of 15 questions there were 5 factors with Eigen scores above 1. A variance rotation produced the factor loadings for each of the 15 questions (See Appendix Two). The 3 questions with highest loadings on factor 1 are associated with trees and duration of view. The 2 questions with highest loadings on factor 2 are associated with the serpentine line: road curves and preferred parts of road. The 2 questions with highest loadings for factor 3 are associated with the overall experience of the road and comparison with other roads. The 2 questions associated with factor 4 are noticing the scenery and plant colour and texture. The 2 questions associated with factor 5 are road width and fit.

Factor 1 has to do with the perception that trees near the edge of the road are attractive and safe elements. In conjunction with a viewing time of adequate duration, trees near the

edge of the road are preferred design elements by BRP motorists. Chi Square test found a significance of .093 for attractive trees and duration of view.

Factor 2 has to do with road structure or the serpentine line. The variables were similar in that they both had to do with road curves; the first with how curves make respondents feel and the second with preferred parts of the road (straights, reverse curves, etc.). The two variables had the highest ranking of any in this analysis, (.825 and .828 respectively). Chi square showed a high significance (.000) for curves and preferred parts of the motor road. Factor 3 joins scenic experience with rating the BRP with other roads. Respondents rate the BRP superior in comparison with other roads. Apparently scenic experience has much to do with that rating. Chi sq. was highly significant (.002) for these two variables. Factor 4 indicates that respondents appreciated plant colour and texture and that that had much to do with noticing the scenery on the parkway road, (in comparison with other roads). Chi sq. was .101. Factor 5 indicates a positive relationship between a narrow road width and good "fit" to the terrain. Chi square for these two variables was highly significant (.002).

8.6.2 . Influence of Demographic Variables

- Position in Vehicle and Experience

It was speculated that where a person was sitting and their activity, (driving or passenger) would influence their experience. Chi square tests indicated that position in vehicle did not have a relationship with noticing the scenery ($\chi^2 = .197$, $df = 2$, $p \leq .906$) or with appreciating plants, ($\chi^2 = .250$, $df = 4$, $p \leq .993$) but did affect how motorists perceived vertical gradient and horizontal alignment. (See below)

- Position in Vehicle and Vertical Gradient

Gradient categories were collapsed from five to three: (1) = unpleasant/did not matter, (2) = quite pleasant, (3) = very pleasant. Chi square tests showed a significant relationship (.153) between position and Q18 vertical gradient. A higher proportion of rear seat passengers than front said that the gradients were unpleasant or did not matter. The reverse was true for drivers. Fewer than would be expected said that the gradients were unpleasant or did not matter. $\chi^2 = 6.685$, $df = 4$, $p \leq .153$

- Position in Vehicle and Changing Alignment

Chi square tests indicated a somewhat significant relationship between position and Q19, alignment, (.303). Alignment categories were collapsed to three: (1) = neutral/somewhat

monotonous, (2) = fairly pleasant, (3) = graceful, I really enjoyed it. Higher numbers of passengers, both front and rear seat, had a somewhat more negative view of the alignment. They rated it neutral (3) or somewhat monotonous (2) more frequently than would be expected.

$$\chi^2=4.852, \text{ df} = 4, p \leq .303$$

Gender and Experience

The data indicates that there are differences between the ways males and females experience the Blue Ridge Parkway. Females noticed the scenery more than males and rated variety and plants higher than males. Males rated curves and vertical gradient higher than females. Far more males than females were drivers. It is speculated that the male drivers were more attuned to road structure. Female passengers may have been better able to concentrate on and enjoy scenery than males. The passengers would be able to use more of their vision to take in plant detail than drivers who would need to focus more on the road. However, as mentioned above, chi square tests for position in vehicle did not show significance for rating of scenery or appreciation of plants.

- Gender and Scenic Variety

The Chi Square test indicated a significant relationship between gender and Q15, scenic variety. (.109)Variety categories were collapsed to three: (1) = predictable or okay, (2) = good, (3) = delightful. More females than were expected found the variety to be delightful. as compared with males Conversely, more males found the variety to be predictable or okay than females.

$$\chi^2=4.431, \text{ df} = 2, p \leq .109$$

- Gender and curves

Fisher's exact test showed a highly significant relationship (.006) between gender and Q16, experience of curves. Curve categories were collapsed to three: (1) = anxious or uncomfortable; (2) = did not matter (3) are pleasant or exhilarating. More females than males found the curves to be associated with anxiety or discomfort than was expected The opposite was true for positive response to curves. More males than females found the curves to be pleasant or exhilarating

$$\chi^2=10.59, \text{ df} = 2, p \leq .006$$

- Gender and gradient

The Chi square test indicated a significant relationship (.195) between gender and the rating of Q18, vertical gradient. The categories for gradient were collapsed to three: (1) = unpleasant/did not matter; (2) = quite pleasant; (3) = very pleasant. More males than females rated the gradient as very pleasant. Conversely, more females than males rated the gradient as unpleasant/did not matter.

$$\chi^2=3.270, \text{ df} = 2, p \leq .195$$

There was no significant relationship between gender and Q19, changing alignment. (.901) This factor was apparently more influenced by position in vehicle.

- Gender and Scenery

The Chi square test indicated a significant relationship (.025) between gender and Q27, noticing the scenery. Females noticed the scenery more than males.

$$\chi^2=4.990, \text{ df} = 1, p \leq .025$$

- Gender and plants

Fisher's exact test indicated a significant relationship (.077) between gender and the rating of Q31, colours and textures of plants. The categories for plants were collapsed to (1) = neutral /inconsequential; (2) = contribute somewhat to my enjoyment; (3) are an important contribution to my pleasure. More females than males rated the plants as (3), important elements of the parkway experience.

$$\chi^2=4.867, \text{ df} = 2, p \leq .088$$

Age and Experience

There was no statistical significance between age and Q17, preferred parts of the motor road. (.773) Older people rated the alignment, variety and overall scenic experience higher than younger people.

- Age and overall scenic experience

Chi square test indicated significance (.337) between Q6, age, and Q12, feelings about the overall experience. The age categories were collapsed to (1) = 0 – 40, (2) = 40 – 70, (3) = over 70. While the majority of respondents liked the overall scenic experience a lot, the few who were neutral or only liked it a fair amount were younger than 40.

$$\chi^2=11.632, \text{ df} = 2, p \leq .337$$

- Age and variety

Chi square test indicated a significant relationship (.052) between Q6, age, and Q15, variety. Respondents aged between 40 – 70 rated the variety delightful more frequently than younger respondents

$$\chi^2=8.420, df = 4, p \leq .077$$

- Age and gradient

Fisher's exact test found a significant relationship (.110) between age and Q18, rating of vertical gradient. Responses by persons aged between 40 – 70 indicated that they found the vertical gradient to be very pleasant more often than persons younger than 40. Responses for persons over age 70 were slightly higher in the unpleasant/did not matter category than expected. However, responses for persons over 70 were very close to the expected range in rating vertical alignment as pleasant or very pleasant

$$\chi^2=7.543, df = 4, p \leq .110$$

- Age and alignment

Fisher's exact test indicated a significant relationship between Q6, age, and Q19, alignment. Persons over 40 found the alignment to be graceful more often than persons under 40

$$\chi^2=11.913, df = 4, p \leq .018$$

Occupation and Experience

Respondents in different occupations had different perceptions of the BRP. In general, non-office workers rated various parkway experiences lower than office workers. Unemployed respondents fell somewhere between the two.

- Occupation and overall scenic experience

Chi square test found significance (.374) between occupation and Q12, rating of the overall scenic experience. Q12 categories were collapsed to two: (1) = neutral or liked a fair amount (2) liked a lot. More office workers than non office workers liked the scenic experience a lot. More non office workers were neutral or didn't like the overall scenic experience than expected.

$$\chi^2=1.970, df = 2, p \leq .374$$

- Occupation and variety

Fisher's exact test found a significant relationship (.081) between occupation and Q15, variety. Office workers rated the variety as delightful (3) more frequently than non-office workers. Non office workers rated the variety to be good (2) or okay/predictable (1) more frequently than was expected. Unemployed respondents rated the variety good and delightful as expected but rated predictable/okay (1) slightly more frequently than expected.

$$\chi^2=8.314, df=4, p \leq .081$$

- Occupation and Curves

The relationship between occupation and Q16, rating of curves was considered to be borderline significant (.421) so it was not included in this discussion.

- Occupation and preferred motor road parts

Fisher's exact test found a significant relationship (.074) between occupation and Q17 motor road parts. More office workers preferred (2) curves in one direction than non office workers. More non-office workers preferred straight sections than office workers. Unemployed respondents rated motor road parts as expected.

$$\chi^2=8.525, df=4, p \leq .074$$

- Occupation and gradient

Chi square test indicated a significant relationship (.033) between occupation and Q18 rating of vertical gradient. Office workers rated the gradient as very pleasant more frequently than non office workers. Non office workers rated vertical gradient as unpleasant more than was expected.

$$\chi^2=10.470, df=4, p \leq .033$$

- Occupation and alignment

Chi square test found a significant relationship (.052) between occupation and Q19, rating of alignment. Office workers rated the alignment as graceful more frequently than non-office workers. More non office workers rated the alignment as neutral or somewhat monotonous than office workers or unemployed. Unemployed respondents rated alignment as graceful more frequently than was expected.

$$\chi^2=9.386, df=4, p \leq .052$$

7.7 Discussion of Public Survey

Some of the questions (Q15, Q19, Q22, Q32) were phrased with descriptive or emotive language and could possibly have led the respondents to answer positively. Ultimately, Q32 was not incorporated in the analysis for this reason. If the survey were to be done again, the design of the questions would use fewer adjectives which might be construed as leading, e.g. using ratings of least attractive (1) to most attractive (5) and eliminating adjectives such as graceful, delightful, and so on.

It is also possible that such things as good weather and predominantly leisure purpose predisposed respondents to look favorably on the BRP motoring experience. Ideally, the survey could be administered at least twice, during different seasons, to counter the possible weather effect. Survey design and administration had little effect on purpose. However, a question related to how people felt *before* they arrived at the BRP might be useful.

It was necessary to collapse categories in order to run the Chi square test. Sometimes, as few responses in negative categories, although the tests indicated significant relationships. It is necessary to keep in mind the broad outlines of the data. Responses overall were skewed in favor of the positive. A larger sample size in future surveys might help to see if this very positive response is consistent for a larger population.

The finding that the majority of survey results are skewed toward positive responses is supported by other studies. Chen [9] also found a very favourable response to the Blue Ridge Parkway, as indicated by the desire to return. 100% of the resident respondents and 98.74% - of the non resident respondents wished to return to the BRP at a future date.

The importance of changing alignment

Clearly, varied and graceful alignment is something the public considers important to the overall driving experience. Changing alignment also is very closely related with rating the BRP as a superior to other roads. This appears to correlate with Hogarth's concept of the merit of the serpentine 'Line of Grace' as a structural element. The changing alignment of the BRP motor road is positively related with noticing the scenery more than on other roads. As might be expected, rear seat passengers had a less positive perception of alignment than drivers or front seat passengers.

Emotional response to motoring the BRP

Positive emotions were associated with the BRP. The emotion most strongly associated with travelling the BRP was relaxation. The reasons for this feeling are probably complex. The purpose of the majority of respondents was leisure. This may have predisposed them to a relaxed state of mind. However, the data suggest that the parkway experience reinforced or augmented this emotional state. The emotions described by Burke as related to beauty are relaxation and love. Words associated with love had the second highest frequency of words used to describe the feeling of travelling on the BRP. Taken together, the frequencies of relaxation and love and the extremely high frequency of the circling of the “beautiful” as descriptive of the BRP, are strong support for Burke’s position that relaxation and love are associated with beauty. Connolly[10] argued that drivers who are physically at ease will be psychologically at ease and that such a state (being at ease) is desirable for driving [11]. (This could also contribute to drivers having a more positive response than passengers). The high rate of satisfaction coupled with a feeling of tranquility finds confirmation with Kaplan, Kaplan and Ryan’s finding that “Many people... find settings that are tranquil and serene to be particularly compelling and absorbing.” [12]

The role of variety

A majority of respondents considered the scenic variety of the BRP to be delightful. All sorts of views were enjoyed. Kaplan, Kaplan and Ryan found generally low ratings for dense vegetation and obstructed views [13], yet BRP respondents rated woodlands fairly high. This may reflect a difference in perception between being in a vehicle and on foot, where the latter means dense woodland makes people feel more vulnerable. The dynamic nature of moving along the road means that no particular view lasts overly long. Woodlands may also be appreciated for the opportunity to study the colour and texture of the trees and for the cool shade they provide.

The importance of plants

There was a very significant relationship between plants and the perceived quality of the driving experience. The higher the ratings for colour and textures of plants, the better the public thinks the overall driving experience is. Connolly,[10] noted that the eye is most sensitive to a yellowish-greenish light. It is also possible that one of the reasons people like the BRP so much is that the road is designed to be driven in daytime when, as

Connolly pointed out, human eyesight functions best [14]. The survey was conducted on a brightly lit day and it is anticipated that all of the motorists could take in the roadside landscape.

The importance of vista

Respondents rated vistas very highly. Mountain vistas were rated highest of all scenic types for Q30 (85.9%). Vistas of all types, including valleys, overlooks and mountain vistas, were the best liked scenes for Q25. The preference for vistas confirms Nassauer's (1999) finding that vistas have a powerful effect on travellers.

Occupation

Occupation does not have direct bearing on the hypothesis. However, it is interesting to note occupation's relationship with other variables. Kent [15] found expert planners and engineers to rank scenic quality lower than non experts. The BRP study found that non-office workers rank scenic quality lower than office workers. Level of education was not asked and it cannot be assumed that that non-office workers have less education than office workers. In a future survey, a question about level of education might be useful to follow up more closely on this issue. It might be that non-office workers are out and about in the landscape more regularly anyway, so less impressed by BRP, or that they spend more time driving as part of their work and like fast, predictable roads, therefore are less sympathetic to the slow pace of the BRP.

Chapter 8 - References

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CHAPTER 9 – SUMMARY AND IMPLICATIONS

9.1 Introduction

This research has explored the design attributes of the Blue Ridge Parkway through a mixed method investigation. 18th century English aesthetic theory, which is a normative based theory, was used as a basis for identifying and examining the BRP's design principles and formal attributes. Scientific methods were then used to test public perception of attributes and principles associated with 18th century theory.

The emphasis of this study is on design principles and their associated phenomena and psychological effects as related to a single case: the BRP. Aspects of the research findings can be generalised to theory for road design elsewhere. Thus the study can serve to help administrators, policymakers, engineers and designers concerned with road aesthetics in the creation and improvement of roads.

Principles of 18th century aesthetic theory has been used as a basis for examining and understanding the BRP's design in response to FHWA's call for "new tools, insights, connections and organising principles that spring from deeper wells of imagination..."[1] While there is a large body of literature related to the technical aspects of roads, "formal transportation research does not yet provide a working definition of "successful" highway design in terms of aesthetic, social, and environmental characteristics..."[1]. The design principles set forth by Hogarth and Burke constitute normative theories of design in that they are based upon "ideological position(s) on what the world, good architecture, landscapes and urban designs should be" [2]. Positive, (analytic, scientific) methods and theory were also used in this study in order to understand how people respond to design. According to Hillier (1996) Lang (1987) and others, design must rely on both normative and scientific theory for it *is* both an art and science. "(I)t requires both the processes of abstraction by which we know science and the processes of concretion by which we know art" [3]. In this study, social science has been used to understand how people respond to phenomena associated with Hogarth's and Burke's normative theories. The understanding of human response can then feed into future design theory.

In Chapter 1 the purpose of the study was presented: to explore and identify formal attributes of the BRP associated with aesthetic theor(ies) related to beauty and to test whether those attributes produce the effect predicted by the theor(ies).

Chapter 2 set out the literature review on aesthetic theories related to road design and landscape architecture relevant to the period in which the BRP was developed, and explored more recent literature on landscape perception which can help explain current responses to the experience of the BRP. The potential influences on the original design of the BRP were shown to relate to landscape architecture of the period, including early modernism which emphasised social purpose and active engagement with landscape; the Prairie School which urged the use of native plants in design; and the general acceptance in America of the picturesque style. Theories of the picturesque in the 18th century, and especially those of Hogarth and Burke, link with those of elements associated with landscape perception in the late 20th century, in particular through those elements associated with landscape preference. This was demonstrated to be an important and intriguing link that might contribute to the development of road design theory and merits further exploration.

Chapter 3 set out the detailed objectives of the study. The first objective was to determine whether the designers of the BRP consciously used the 18th century English aesthetic theories of Hogarth and Burke in the parkway design. The second objective of the research was to determine if current public experience of the parkway is consistent with the theoretical principles of Hogarth and Burke.

Chapter 4 set out the methods used to explore the objective and indicated how the research was divided into two stages. (See Figure 42) Results from the qualitative stage, Stage I informed the design of the quantitative stage, Stage II. Both stages informed the conclusions of the research.

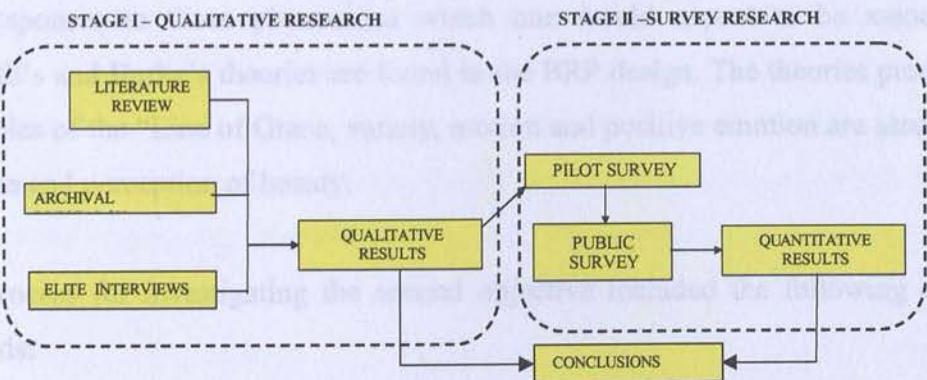


Figure 42 - Organisation of the Study

9.1.1 Overview of Objectives of the Study

The first objective, which had to do with whether the BRP designers consciously used the 18th century theories of Hogarth and Burke, was examined qualitatively by collecting data through elite interviews and archival documents. Chapter 7 discusses the findings from that part of the study in detail. The process for investigating this objective used the following qualitative methods:

1. a review of a diverse array of literature: landscape architectural history; landscape architectural theory; road design literature; contemporary landscape aesthetic theory and research; and technical literature related to the technical aspects of road design. This information is found in Chapter 2.
2. identification of Hogarth's and Burke's primary principles of successful design. These were the **"line of grace"; variety; motion; and emotion.**
3. examination of the BRP design through field observation to identify specific attributes embodying those principles
4. examination of BRP archival drawings, reports and memoranda to identify specific attributes embodying those principles.
5. carrying out of elite interviews with persons associated with the early phase of the BRP design
6. examination of Cornell University archives to find out about the chief designers' educational background

Based upon the findings related to the design principles, a pilot and public survey were developed to explore the second objective: to determine if current public experience of the parkway is consistent with the theoretical principles of Hogarth and Burke. Chapter 8 presents the findings from the surveys. This thesis attempts to verify whether phenomena and responses to those phenomena which one would expect to be associated with Hogarth's and Burke's theories are found in the BRP design. The theories predict that the principles of the "Line of Grace, variety, motion and positive emotion are associated with creation and perception of beauty.

The process for investigating the second objective included the following quantitative methods:

1. Development of a pilot survey based upon the principles, terms and themes from Hogarth's and Burke's treatises related to the four principles. This survey was administered to 42 students, using a videotaped sequence of the BRP

2. Development of a public survey after refining the survey instrument and questionnaire. This survey was administered to 199 respondents, at a service facility on the BRP, June 21 and 22, 2002.
3. Statistical analysis was employed to understand more about the data from the public survey.

9.1.2 Summary Related to Qualitative Methods: the BRP Design as a Manifestation of Hogarth's and Burke's Theories

The first objective was to determine whether the designers of the BRP consciously used the 18th century theory in the parkway design. Chapter 5 presents evidence of the BRP's design background. Chapter 6 discusses the designers' education and Chapter 7 presents links between 18th century English aesthetic theory and the BRP design.

Primary archival research did not reveal any declared intention on the part of the BRP's designers to use Hogarth's and Burke's principles. However, it revealed that in practice, the BRP physical design does reflect several design principles. (see discussion below.) Research in the Cornell University archives indicated that chief designer Abbott's education was grounded in theory and history of fine art, landscape architecture and architecture. While it cannot be proved conclusively that he was aware of Hogarth's theory, Abbott's painting instructor (a portraitist like Hogarth) stressed the need for organized composition: "the artist must depend upon sheer beauty of arrangement" and "through the arrangement of lines, spaces, light and shade and colour, the artist may create a thing of enduring beauty..."[3] Abbott's teachers were linked through the apprenticeship system to Olmsted, Sr, founder of landscape architecture in America. Olmsted's work exemplified the English Picturesque style and was widely emulated by other landscape architects in America. (see Chapter 2 for Background of American Landscape Architectural History) However, based on the results of the qualitative research - particularly the elite interviews and BRP and Cornell University archival investigations - the designers did not consciously or explicitly base the design on Hogarth's and Burke's theories. The design principles which were overtly important to the BRP's designers, including those of engineering design based on railroad engineering, were explored.

9.1.3 Summary Related to Quantitative Methods: Public Perception of the Design of the BRP

The second objective of the study was to determine if current public experience of the parkway is consistent with the theoretical principles of Hogarth and Burke. The survey was developed after the qualitative research brought to light phenomena associated with the Hogarth's and Burke's theories. Design attributes associated with Hogarth and Burke's theories were revealed through analysis of data gathered from the public survey in Chapter 8. The reverse spiral curves and vertical alignment of the motor road appear to be a manifestation of the "Line of Grace". Both the road geometry and landscape scenery are varied. Motion is affected through coordinated horizontal and vertical alignment. This motion also adds variety to the experience. Finally, anecdotal evidence and personal observation indicated that positive emotions were elicited by the BRP design.

The survey(s) included questions on each key design principle:

- Questions related to the "Line of Grace" or road structure
- Questions related to variety
- Questions related to motion, also grouped under road structure
- Questions related to emotion

Additional questions having to do with the overall scenic quality of the BRP, design terms and demographics were included.

9.1.3.1 Survey Findings

The study found an overall high degree of user satisfaction with the BRP motoring experience. The most important finding was significant evidence in support of Burke's theory relating beauty to the emotions of calmness and love. These two categories of words had the highest frequencies in an initial question asking respondents for their response to driving the BRP. The position and open-ended format of the question meant that there was no leading and that the answers came as immediate responses to the BRP experience. Respondents also rated reverse spiral curvature (Q 17 of the survey) higher than any other aspect of road alignment. This indicates support for Hogarth's theories of the "Line of Grace". Plant colours and textures and variety of scenery were favoured aspects of the road's design. Thus, the hypothesis under objective two is broadly supported, i.e. the 20th century public experience appears to be consistent with Hogarth's and Burke's theories. The strongest evidence for this is for the emotions proposed by

Burke as being associated with beauty. The BRP is perceived as beautiful by the public; the emotions associated with travelling on the BRP are calmness or relaxation, and love.

The findings indicate that different genders, occupations and ages have different responses to the BRP. Position and activity within the vehicle, i.e., driver or passenger, impacted perception. Drivers seemed to appreciate road structure and kinaesthetic sensation more than passengers who were in turn more receptive to plant colour and texture. Office workers and those who were in the driving seat seemed to particularly appreciate the qualities of the BRP – an important implication for leisure benefits and (perhaps) for safe driving. Driving pleasure may be distinctly enhanced through the road structure. The pleasure associated with driving the BRP is certainly associated with its designed form. (see discussion of “Line of Grace” below.) Younger people were less appreciative of the attractiveness of the BRP, perhaps because they prefer a more challenging context with their faster reaction time. Women’s and men’s appreciation of certain aspects differed; is this simply a reflection of who’s usually in the driving seat or is it a more fundamental difference in landscape preferences in relation to road? The issue of how different genders perceive and respond to road aesthetics is worth investigating in future research.

9.2. Summary related to the Four Design Principles of Hogarth and Burke

9.2.1 The Principle of the “Line of Grace”

BRP archival drawings and memoranda, and field observation, indicate that the motor road’s synchronised horizontal and vertical alignment and spiral curves were not viewed as simply technical issues but as fundamental components of the road’s aesthetics. Abbott called the motor road “almost a form of sculpture”[5]. During the earliest design phase of the parkway landscape architect Van Gelder (1934) wrote:

“The engineers have a tendency to regard the line as a series of tangents, connected by curves no longer than necessary. This tends to result in a hard line with abrupt curves. The landscape architect would rather consider a parkway alignment as one continuous flowing curve...” [6]

Spiral curves were used to achieve the flowing curvilinear alignment envisioned by van Gelder and the other BRP landscape architects. The technical evolution of the spiral curve from its use in railroads to parkways is presented in Chapter 5. Spiral curves were originally developed by railroad engineers to counteract centrifugal force on standard

curves. Spirals allowed railroad cars to maintain speed and safety when entering and exiting standard curves. Parkway designers saw the advantages of using spiral curves for motor roads. Elite interviewee, BRP landscape architect Robert Hope, describes the effect of spiral curves upon the driving experience:

“It’s all curvilinear. But its gentle curves in that you have a spiral curve that leads into a curve and a spiral that leads out of it. And the curves are super-elevated curves. And you can imagine what its like to have a super elevated curve to the right and then you transition back on a spiral and a short tangent and than another spiral into the other curve with a super elevation the other way, you see. So it’s the super-elevated curves and the spiral transition that leads into those. And, of course, you’re going from a super-elevated section to a full crown and then back to a super-elevated curve. And it just flows. That’s where the term curvilinear parkway comes to play. But it’s just so easy and gentle to drive at the speed limit. But if you want to get in trouble, you just try going way over the speed limit, and you’ll be in trouble.”[7].

Spiral curves were found to be a fundamental structuring agent for the composition of the BRP design. Although (for the sake of variety) reverse spirals are not used throughout the 469-mile road, they are the consistent geometric feature of the road. Survey respondents preferred reverse curves over straight sections of road, and over curves in one direction only. In addition, a majority of respondents rated the overall alignment as “graceful”. The survey results revealed a significant relationship between rating the alignment as “graceful” and noticing the scenery more. This would seem to indicate a perceived relationship between graceful road structure and landscape scenery. It may be that a graceful structure encourages or affords greater appreciation of the scenery.

It is worth noting that the “Line of Grace” serves the composition in a way that Hogarth could not have imagined. It is not abstract or invisible. It is a physical reality experienced first hand by motorists who are travelling through the landscape composition, rather than merely looking at (as with a painting or sculpture).

9.2.1.1 Road Design Implications for use of the “Line of Grace”

The serpentine “Line of Grace” is a prescient design principle which was later confirmed by Smith and Lamm (1994) and others to be important to technical theory related to in-

phase horizontal and vertical alignment. Hogarth's proposition was much more expansive in scope than the later technical theory. He considered the line as a structuring agent that would function at many levels—to give pleasure to the mind as a riddle or well connected plot in a play, gives pleasure; to provide a dynamic centre for composition; to engage the eye in a “wanton chase”.

The qualitative investigation of the BRP revealed that the motor road is the backbone, or skeleton, of the design—thus, its form was of utmost interest to the designers.

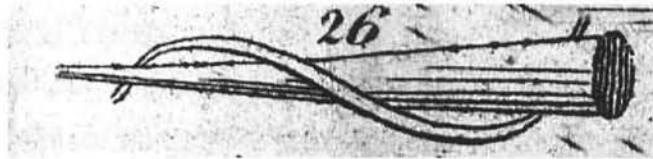


Figure 43 – The *line of grace* is “represented by a fine wire, properly twisted around the elegant and varied figure of the cone” in Hogarth’s *Analysis of Beauty*

Connolly (1967) pointed out that motorist’s eyes are more relaxed when scanning wider angles and that stimuli, such as trees, vistas and fields, prevent visual monotony, (a cause of highway hypnosis)[8]. Reverse spirals offer alternating views of the roadside landscape thus encouraging more eye movement. As pointed out in the discussion of the evolution of spiral curves presented in Chapter 5, spiral curves permit the road to adapt to the topography and to vary direction comfortably, allowing the road to wrap around outcroppings, approach steep elevations at oblique angles and avoid large trees, or other important landscape features. Spirals can be used to help preserve dramatic features in the landscape for visual enjoyment. Preservation of natural features reduces environmental damage and also offers opportunities for landscape design.

Qualitative and quantitative aspects of the research suggest some design guidelines for understanding and using the “Line of Grace”:

1. The “Line of Grace” is an elegant conceptualisation of in-phase vertical and horizontal alignment which results in gentle, rhythmic, oscillating movement along the road.
2. Motion along the “Line of Grace” results in a sense of pleasure for most people.

3. Motion along the “Line of Grace” permits sequenced views of the road, including emphasis on alternating sides of the road. This encourages free eye movement and counters highway hypnosis; it thus has a safety benefit.

The concept of the “Line of Grace” merits further scientific testing and analysis. For example, the optimal range of vertical gradient needs to be considered. Is 3 – 6% gradient ideal in all situations? Perhaps 2 - 4% or 2 - 5% is actually perceived as gentler, smoother, yet still perceptible, by the motoring public.

9.2.2 The Principle of Variety

Both Hogarth and Burke contended that variety is one of the most necessary design attributes. Hogarth claimed that variety is the antidote to boredom and that “all the senses delight in it, and equally are averse to sameness”[9]. He also cautioned that too much variety is not desirable because the eye becomes “glutted” with it and recommends some plain space as a contrast to variety. Most of all, he recommended “Composed variety, for variety uncomposed, and without design, is confusion and deformity” [10]. Burke advocated smooth transitioned variety in all works of art, including music.

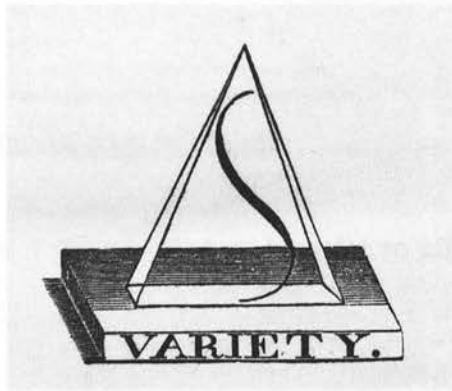


Figure 44 - Frontispiece of Hogarth's *Analysis of Beauty* indicates the importance he placed upon variety, as well as the serpentine line, as constituents of beauty

Variety was acknowledged by the BRP designers to be an important design constituent. At the outset of the design process, Abbott recommended an overall route that included Tennessee for reasons of “variety of scenery, reasonable construction costs and good direction” [11]. Although this route was rejected for political reasons, Abbot had made clear his desire for variety in the composition. As the process turned to location of the

motor road in ten-mile sections, Abbott called for variety of natural setting through which the parkway should pass:

“We (the landscape architects) and the engineers together just drilled and drilled, all of us, on the business of following a mountain stream for a while, then climbing up on the slope of a hill pasture, then dipping down into the open bottomlands and back into the woodlands”[12].

Landscape variety was pointed out by all three interviewees to be an important attribute of the overall design. Although, variety was apparently not achieved according to a formula as to the duration or length of a landscape scene, Hope and others claimed that the designers knew, *as landscape architects*, what constitutes variety and how to achieve it. This seemed to relate back to a similarity of education and shared view of acceptable form and theory which is, as observed, based on the English picturesque.

81.2% of the survey respondents rated the BRP’s variety of scenery as delightful and varied. Statistical analysis revealed a very highly significant relationship between overall scenic experience and variety. This would seem to indicate that motorists feel that variety has an important role to play in the overall scenic experience and appreciate variety in the landscape of the road.

9.2.2.1 Road Design Implications of Variety

1. Roads should have a varied structure in order to afford kinaesthetic change and interest.
2. Motorists appreciate landscape variety. Roadside landscapes should be varied in order to maintain visual interest and stimulation. Vistas, (mentioned by Nassauer to be exceedingly preferred by motorists) should be counterbalanced by other scenes in the middle and intimate range, such as woods, canopy views, farm views, woodland and shrub views.

9.2.3 The Principle of Motion

Hogarth claimed that the “line of Grace” was most beautiful when activated by motion. *Forward* motion and *vertical* (up and down) motion are, according to Hogarth, very pleasing to experience and to see. Hogarth’s primary example of an activated serpentine

line is the minuet—a dance of serpentine patterns in which the dancers rise on their toes and gently bend their knees. Burke's principle is that gentle, oscillating (vertical) motion is conducive to positive perception:

“(T)here is a species of motion which relaxes more than rest; a gentle oscillatory motion, a rising and falling....Most people must have observed the sort of sense they have had on being swiftly drawn in an easy coach on a smooth turf, with gradual ascents and declivities. This will give a better idea of the beautiful and point out is probable cause better, than almost anything else. On the contrary, when one is hurried over a rough, rocky, broken road, the pain felt by these sudden inequalities shows why similar sights, feelings and sounds are so contrary to beauty [13].

The kinaesthetic aspect of the BRP experience was considered important by the designers as judged by the care taken with alignment. The vertical gradient is gentle (3-6%, 8% maximum), yet perceptible. Horizontal alignment was accomplished with spiral curves. According to Abbuehl, all curves over $1^{\circ}30'$ were transitioned by spiral. The BRP's vertical and horizontal curves are in phase so that they occur in tandem or with the horizontal preceding the vertical change. Mid to late 20th century authors, such as McCluskey (1992) recommended in phase alignment for roads. However, such alignment had been in place on the BRP (and other parkways) since the 1930's.

Survey questions having to do with movement were those rating vertical gradient and horizontal alignment. Alignment was rated higher than gradient which most respondents considered “not to matter” or “quite pleasant”. Nearly a quarter of the respondents rated the vertical gradient as “very pleasant”. A person's position in the vehicle affected their perception of vertical gradient. A higher proportion of rear seat passengers than front said that the gradients were unpleasant or did not matter. The reverse was true for drivers. Fewer drivers than would be expected said that the gradients were unpleasant or did not matter.

Respondents appreciated the horizontal aspects of the road structure more than they appreciated vertical aspects. Higher numbers of passengers, both front and rear seat, passengers had a somewhat more negative view of alignment. In future surveys, more specific questions about motion should be included to elicit more about the motorist's

kinaesthetic experience. It is also interesting to note that some of the words used to describe the feeling of traveling on the BRP alluded to motion. Respondents wrote “waltzing” and “dynamically enjoyable”— indicating the pleasure of moving along the BRP.

9.2.3.1 Road Design Implications for Motion

1. Smooth, fluid and varied motion can play a significant role in the motorist’s experience of the road. Connolly and Schmidt complained of the absence of kinaesthetic sensation in modern vehicles which are sound proof and virtually motion proof. [14] They view motion as essential to the driving experience. Modern highways with simpler geometries tend to avoid the use of curves and instead emphasise tangents. Long, straight tangents reduce the sensation of horizontal motion—and allow for virtually limitless speed. Further, vertical gradient is often kept to the minimum (around 2 %) and there is little fluctuation in vertical motion.

Both Hogarth and Burke viewed motion as crucial to the aesthetic experience of landscape. Burke mentioned that smooth motion is “more restful than rest”. Road structures that maximize fluid, graceful motion appear to be more interesting and pleasing to motorists than structures that do not require or permit or maximize motion.

9.2.4 The Principle of Emotion

Hogarth developed a rational basis for creating art. Burke wrote about aesthetic experience and the emotional effect of art, including landscapes. Beauty arouses a feeling of love. “By beauty I mean that quality, or those qualities in bodies, by which they cause love, or some passion similar to it...” [15]. Love triggered by beauty is uncontrollable and irrational. “It demands no assistance from our reasoning; even the will is unconcerned”[16]. Burke claims that beauty is perceived immediately on an emotional level and requires no intellectual reasoning. This principle is partially confirmed by Stephen Kaplan’s (1987) landscape preference research which found that: “Participants (in the landscape research programme) made preference judgements rapidly and easily. They even seemed to enjoy the process” [17]. Scenes which were preferred, and according to Kaplan selected rapidly, were the more attractive scenes, such as those

conveying “mystery”. Burke wrote of a languorous relaxation that is associated with perception of beauty: “that sinking, that melting, that languor, which is the characteristic effect of the beautiful, as regards every sense”[18].

Burke contrasts the love inspired by beauty with “that awe, astonishment, even terror, are associated with sublime scenes such as mountains, where “the mind is so entirely filled with the object, that it cannot entertain any other” [19].

The most important finding from the survey had to do with emotional response to the BRP experience. In a fill-in-the-blank question, asking respondents to write two words to describe the *feeling* of travelling on the BRP the two words most frequently used had to do with feelings of relaxation or calmness, (42.9% - first word, 42.3% second word). The second category of most frequently used words were those describing feelings of love or awe (27.1% - first word and 15.4% - second word). Words moderately associated with relaxation were close in ranking to awe, (12.4% and 16.3% respectively). Words associated with excitement were used by 7.1% and 10.6% of the respondents, respectively. No negative words were written as the first word and only 2.4% of respondents used them as the second word. Although beautiful was not thought to be an emotion, it was written in by 10.6% of respondents as the first word choice, and 13% as the second word choice. Obviously the respondents *did* consider beautiful to have an emotional connotation and it was included in the response categories for this question.

A very high number of respondents (93%) circled “beautiful” as one of five selected to describe the BRP. While “beautiful” was listed as the first word of a list of 30, which may have predisposed respondents to circle it first, it was the highest frequency of any of the thirty words, and almost double the frequency of the second most circled word, “graceful” (56%). Even if we treat the ‘beautiful’ response as flawed, a case can be made that most respondents perceive the BRP as beautiful, and that positive feelings of calmness, tranquillity, relaxation, love and awe are associated with the travelling on the BRP. This finding seems to confirm Burke’s principle that positive emotions are associated with beauty.

9.2.4.1 Road Design Implications for the Principle of Emotion

1. As noted in Chapter 1’s Definition of Terms, aesthetics has to do with the theory, forms and psychological effects of beauty. An important but little understood

aspect of road aesthetics is the psychological effect of design upon the motorist. The BRP was a road designed with beauty, (rather than efficient transport of goods and people), as a primary value. The positive emotions associated with the perception of beauty on the BRP would appear to have relevance for other roads. The survey and qualitative data support the idea that road structure; landscape variety; and graceful, fluid movement contribute to a road's beauty. Calmness is a prevalent emotion associated with that beauty. It may be possible to counter negative emotions, (i.e. road rage) through a richer, fuller consideration of road design, as was done on the BRP, and by valuing beauty as an important goal in road design.

9.3 Other Road Design Implications to Facilitate Contextual Design

9.3.1 The Importance of Plants

In the user survey results, there was a very significant relationship between plants and the perceived quality of the driving experience. The higher the ratings for colour and textures of plants, the better the public thought the overall driving experience was. Connolly (1967) noted that the eye is most sensitive to a yellowish-greenish light. [20] It is also possible that one of the reasons people like the BRP so much is that the road is designed to be driven in daytime when, as Connolly pointed out, human eyesight functions best [21]. Kaplan, Kaplan and Ryan found generally low ratings for dense vegetation and obstructed views. [22] Yet BRP respondents rated woodlands fairly high. This may reflect a difference in perception between being in a vehicle and on foot. Plants played at least as important a role as vistas in the scenic aspects of the motoring experience. Woodlands may be appreciated for the opportunity to study the colour and texture of the trees and for the cool shade they provide. Women noticed plant colour and texture more than men. This may be a function of more women being in the passenger seat, or perhaps, a gender difference in preference.

The BRP landscape is comprised of a variety of plant type, as it travels through the lush and diverse vegetation of the Southern Appalachians. Plant species *native to the immediate neighbourhood* were used to blend the road with the adjacent landscape. This was considered a matter of “soil, moisture and scenery conservation” [23].

Cues were taken from the surrounding landscape. Plants, such as laurel or rhododendron, already found to thrive in the immediate vicinity would be planted on recently cut slopes.

Obviously, such plants would be more likely to survive in the soil and moisture conditions of that particular situation. Further, they would appear to be extensions of the existing vegetation.

Many road plantings today are self referential—that is, they do not relate to the domain outside of the road right of way. Sweeps of wildflowers are planted in highway medians, but are not repeated in adjacent fields or edge conditions outside the right of way. Shade trees are planted in rows at bridge abutments or exits of highways, but such trees are not seen in that configuration elsewhere along the highway. Such plantings look out of place and *non contextual*. Designers need to take their cues from the immediate region of the road. This is also a recommendation to avoid the clearing of large swaths for the right of way as is common on many road projects. This wholesale clearing destroys the majority of plants in the vicinity of the road, making it much more difficult to create a sense of belonging to the larger context.

Large trees near the road were viewed in a positive light. They were *not* viewed as a driving hazard and were seen as contributing to the overall driving experience.

Pre existing trees near the road can help anchor a composition and lend a feeling of inevitability to the landscape of the road. Currently, many American roadside plantings consist of broad sweeps of wildflowers which are appealing for their colour and seasonal display. Such plantings, of course, are low and do not pose a safety hazard to drivers. However, large trees provide essential environmental benefits such as conversion of carbon dioxide to oxygen, transpiration of water into the atmosphere and cooling of the road surfaces through shade. In a recent parkway design—the Paris Parkway, Kentucky—every tree in the road’s corridor was mapped in order to salvage as many as possible. [24] Large trees are tall vertical elements that serve to counter the horizontal scale of the road. Moreover, large trees salvaged in the road’s right-of-way tend to blend in with landscapes outside of the right-of-way which helps to blur the road’s boundary. The eradication of the boundary line was mentioned by theorist Repton and BRP designer Abbott as a highly desirable characteristic of landscape design.

9.3.2 Eradicating the Boundary Line

The blurring of the boundary was a much sought after effect in 18th c English landscapes. Repton set out specific recommendations for this. Abbott echoed them:

“The line of federal ownership, however important, is arbitrary. It simply affords control over the immediate foreground of a far-flung picture. An appreciation of this fact is indeed the very foundation upon which the Parkway’s design policies have been built. Because of it the roadway becomes the narrator of the whole story of the mountains” [25].

“(B)ecause of the limited width of right of way and the community of this parkway with its countryside, the need will continue to maintain those grassed areas and shrub bays which are the seemingly natural transition from pavement to field and forest” [23].

9.4 Limitations

This case study is limited in five areas. The first was the decision to address only the BRP and not to include a survey of another road, say a road in the mountains that is straight, or a curving road without a picturesque landscape. Information from a second, contrasting road design would provide a better means of measuring and understanding road design theory in the broader context. This was outside the bounds of this PhD study. However, while resources did not allow the inclusion of the second survey, it is recognised as a limitation of the research. A comparative case study could be undertaken in the future, based upon the findings of this study. For example, Paris Pike, Kentucky, a contemporary road built with similar design principles, including the use of reverse spiral curves, adaptation to existing topography and use of diverse, picturesque plantings, might make a suitable comparison.

A second area of limitation became evident as the research progressed into the analysis of the survey results. The data was skewed toward the positive which made it difficult to analyse. The lack of control of participant’s experience is not a reason for the skew to the positive – the positive is probably a reflection of the general attractiveness of the surrounding landscape and people being in a leisure mode. The survey did not discriminate as effectively as one would have hoped between more and less positive aspects of the BRP itself; ideally a wider variation in responses would have made for more effective analysis. The variation in the individual experience of different respondents to the survey is a quite separate limitation of the study.

Another possible reason for the skew toward the positive may lie in the design of the survey. As Chapter 8 points out, using a survey tool, such as a video tape of a specific sequence of roadway as was done in the pilot survey, affords more control. However, a video does not convey the true experience of driving. Public survey respondents drove different sections and distances on the parkway, and were viewing it from different directions (driving South or North). This could have given them very different perspectives of the BRP design. However, it was determined that conducting the survey in the field allowed for immediate response to the actual motoring experience. In future surveys, interviewing only those motorists who had driven a specific section of parkway might be carried out. However, the drawback of this is that it would require far more time.

A possible reason for the positive responses may also lie in the questionnaire design. The questionnaire could also be rephrased to be more objective in its questions. As mentioned in Chapter 8, some questions could be viewed as leading. Some of the questions were phrased with descriptive or emotive language and could possibly have led the respondents to answer positively. Ultimately, one question (Q32) was not incorporated in the analysis for this reason. If the survey were to be done again, the design of the questions would use fewer adjectives which might be construed as leading, e.g. using ratings of least attractive (1) to most attractive (5) and eliminating adjectives such as graceful, delightful, and so on.

Third, the study was limited to surveying motorists during two days in early summer. The weather was warm (75 – 80 degrees Fahrenheit) and clear. The good weather and viewing conditions could have predisposed motorists to view the BRP favourably. It would be informative to conduct the survey in different weather conditions and during different seasons to gain a more well rounded view of the experience. It was also found that most of the BRP respondents were visiting for leisure, which might have predisposed them to respond favourably to the landscape and driving experience and contributed to the positive skewing in responses.

Fourth, the survey was limited to motorists on the BRP, potential motorists or persons who had never driven the BRP were not surveyed. Social science research recommends surveying a sample of the public which includes potential users of a site, as well as, actual users. While this was considered as an option, when setting up the survey instrument, it

was determined that surveying on the BRP would provide a fuller picture of the aesthetic aspects of the BRP.

Fifth, historic research could be extended to investigate other influences upon the landscape architects and the design. For example, investigation of the earlier education, outside readings and areas of interest, personal correspondence and family influences of Stanley Abbott, Edward Abbuehl and Hendrick van Gelder could be carried out. Political and cultural influences could also be explored, in particular to find out the effects of Federal policies and mandates on the design. Time and financial resources did not allow for this further investigation which is recognised as a limitation of the qualitative research.

9.5 Possible Alternative Explanations for the Findings

The hypothesis is based upon normative theory. However, there appears to be a correlation between what the early art theorists, (Hogarth and Burke) and American landscape architects (FLO and Abbott) thought to be beautiful and the scientifically based environmental aesthetic theory of the Kaplans. The overlap between normative theory, which is what landscape architects and designers have traditionally used for their designs, and scientifically based theory which attempts to prove “the world as it is” is an area of research that merits further exploration. The thrust of this thesis is in the realm of normative theory. However, some of the findings appear to be supported by more recent scientific theory. What Burke and Hogarth proposed as the basis for successful design, that is principles of the serpentine line of grace, variety, and motion may have a biological or evolutionary basis. As Groat and Despres (1991) suggest, this is a case where normative theory, (such as the treatises of Hogarth and Burke) “can contribute to the advancement of environment-behaviour research” [26].

Stephen Kaplan (1987) and the Kaplans, et.al. (1996) present two points concerning the roles of nature and mystery in the landscape which have import to road design: 1. Nature scenes are *by far* preferred to built environment scenes. (*italics mine*) and 2. within the nature category the most preferred scenes are of mystery. The two kinds of most preferred scenes in the Kaplans’ research are: a trail that disappears around a bend, or a brightly lit clearing partially obscured from view by intervening foliage. [27] During the late 1800’s, Olmsted identified mystery as something to be aimed for in design. He advocated plant texture and bounteousness (both rated very highly in the BRP survey) in order to effect “a

complexity of light and shadow near the eye” resulting in “richness, delicacy and mystery”[28]. Olmsted’s design approach was directly linked to the 18th century English aesthetic. Thus while mystery has been identified (or confirmed) scientifically as a landscape preference for twenty years, normative theory identified mystery as an important design criterion two hundred and fifty years ago. It dates back at least as far as Hogarth’s treatise (1753).

The Kaplans’ experiments found that mystery is a highly favoured, if not the most highly favoured, information factor in their matrix. Mystery “suggests the potential for exploration, either because of the variety of the elements or because of the cues that imply there may be more to be seen” [29]. The image of the curving path through the woods was found to be one of the public’s most preferred scenes in the Kaplan’s research. [27] The path is clear and unambiguous. It suggests easy forward movement into the scene and around the bend in order to find out what the next scene has to offer. In preferring a scene, such as the one with the path with its reverse curves, Stephen Kaplan argues that the observer must be able to:

1. interpret the three dimensional qualities of a landscape
2. perceive that it is possible to enter and move with ease into a scene
3. grasp that there is more to be learned as one progresses into the scene.

“All of this inference takes place not only unconsciously, but also very rapidly” [30].

On the BRP, the motorist does not have a variety of options as to where to move, the movement is restricted to forward movement along a single, clear, well defined route. The route is unambiguous. The road is mainly comprised of reverse spiral curves. The motorist has to make very few decisions about where and how to proceed. These few decisions pertain to pulling off the road for into a rest area for refreshment, or to enjoy the view at a parking overlook. It may be that a changing, yet fluid, rhythm afforded by different rates of spiral curves is an essential antidote to boredom for some evolutionary reason. Likewise the role of scenic variety in road design may be supported by biologically based aesthetic theory. If humans are capable of acquiring and assimilating new information and making quick decisions based upon that information, then in heavily structured and controlled situations (roads), landscape variety may be essential to keep us engaged and interested. Certainly The Kaplans’ research seems to point to the possibility of this conclusion. Hogarth and Burke argue for variety from the perspective that it enhances art, makes it dynamic and keeps the viewer engaged in a composition.

There may be a physiological explanation for the feeling of relaxation on the BRP which has to do with eye movement. Connolly and Schmidt's optical findings articulate the need for the eye to scan wide angles and to include vertical as well as, horizontal movements, in order to avoid the paced eye movement associated with highway hypnosis. The variety of view ranges (near, mid, long distant an miles distant) developed or enhanced by the BRP seem to effect a wider variety of eye movement. Stimuli, such as terrain variation, vistas of fields and groups of trees are identified as being sufficient to prevent visual monotony. [30] Connolly also provides one explanation for the importance of plant colour and texture as a positive factor of the BRP. He claims that monotony is associated with extremely wide areas cleared of trees, levelled terrain and long straight stretches. [8] Perhaps the presence of detailed texture and form of plants, (as well as, changing vertical and horizontal alignment) plays an important role in offsetting monotony and highway hypnosis. A variety of plants near the road provide close up detail to the landscape scene which was valued by the motorist in the BRP survey.

This case study uses scientific theory to test normative theory. Following the model suggested by Groat and Depres (1991) it first identifies principles advanced by Hogarth and Burke as constituting beauty. Then, it tests whether the use of those principles in the BRP design actually result in perception of beauty. The study seeks to create a loop between normative theory and scientific theory by using both. Scientific theory can both test and serve as a basis for helping to develop normative theory. Likewise, normative theory, as suggested by Groat and Despres can be used as a means of enriching scientific theory.

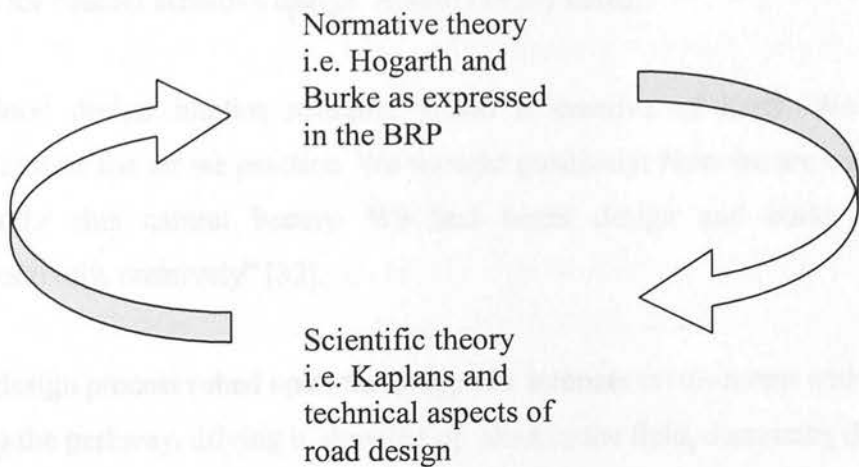


Figure 45 – Diagram showing connection between normative and scientific theory

9.6 Implications for Integrating Normative Theory in Road Design

The study could help improve practice by helping to understand and value artistic theories and possibilities of road design. An understanding of the relationship between motion, landscape design and emotion can facilitate decisions related to horizontal and vertical alignment (the rhythm of the road); and landscape form and relationship of the road with adjacencies. Finally, artistic use of compositional features, such as the “line of grace” and “controlled” variety may help improve road safety. Varied landscape scenery and pleasant kinaesthetic movement may counter the boredom associated with “highway hypnosis” which results in potentially fatal accidents. While much more work remains to be done in the area, the fact that a positive emotional state is associated with beauty would seem to have important implications for better integration of aesthetic theory with road design.

9.7 Implications for the Role of Landscape Architects in Road Design

One of the most important aspects of this study was the discovery and presentation of the design process in Chapter 5. The background discussion, as well as, the literature review, indicated that landscape architects contributed much to road design in the early 20th century. On the BRP, landscape architects led the process and were responsible for the final decisions regarding all aspects of the road design: including road structure, landscape, right of way, location, structures, overlooks, bridges, tunnels, drainage structures, etc. Chapter 6 shed light on the education of the chief landscape architect and indicated the importance of his fine arts training and theoretical approach to the design of the BRP. His comments regarding responsibility for design are pertinent to the FHWA’s recent call for context sensitive design. Abbott (1958) stated:

“Good design implies restraint, which is creative of itself. We should not minimize the art we practice. We thought positively: Now we are coming in here amidst this natural beauty. We had better design and build thoughtfully, sensitively, creatively” [32].

The BRP design process relied upon the designer’s intimate involvement with the setting by walking the parkway, driving it, drawing up plans in the field, discussing decisions with other professionals and contractors in the field. This *in situ* approach would seem to allow for a more complete understanding and intuitive response to the environmental

context. On the other hand, an overall concept of the BRP design approach had to be understood so that each part would blend in with those the one ahead and the one left behind. This is where the landscape architect's grounding in art, design and theory is important. The normative foundation and experience allows the designer to project into the future, to generate ideas creatively and to look at potential solutions from many angles and perspectives.

Another aspect of the landscape architect's role was the notion of *continuity of vision and responsibility*. Abbott, Abbuehl and van Gelder's long tenure with the BRP, and their mentoring of the next generation of designers, Hope, Pease and Hooper, was important to sustaining the design vision of the parkway. Moreover, problems or design weaknesses in early sections could be corrected. Such problems could be avoided in later sections.

Contemporary roads tend to be designed indoors and this is often viewed as an efficient way of working. It keeps "productivity" time on the computer or drafting board high. Much of the design of the BRP was conceptualised or refined in the field. This process, along with the discussion amongst engineers and landscape architects, in the early design stages, helped to create a road that suits its context. There is no substitute for time in the field, before and during construction. It is in the field where the logic of a landscape's design is confirmed or disconfirmed and where adjustments can be made to salvage important landscape features. [33]

9.8 Areas of further research:

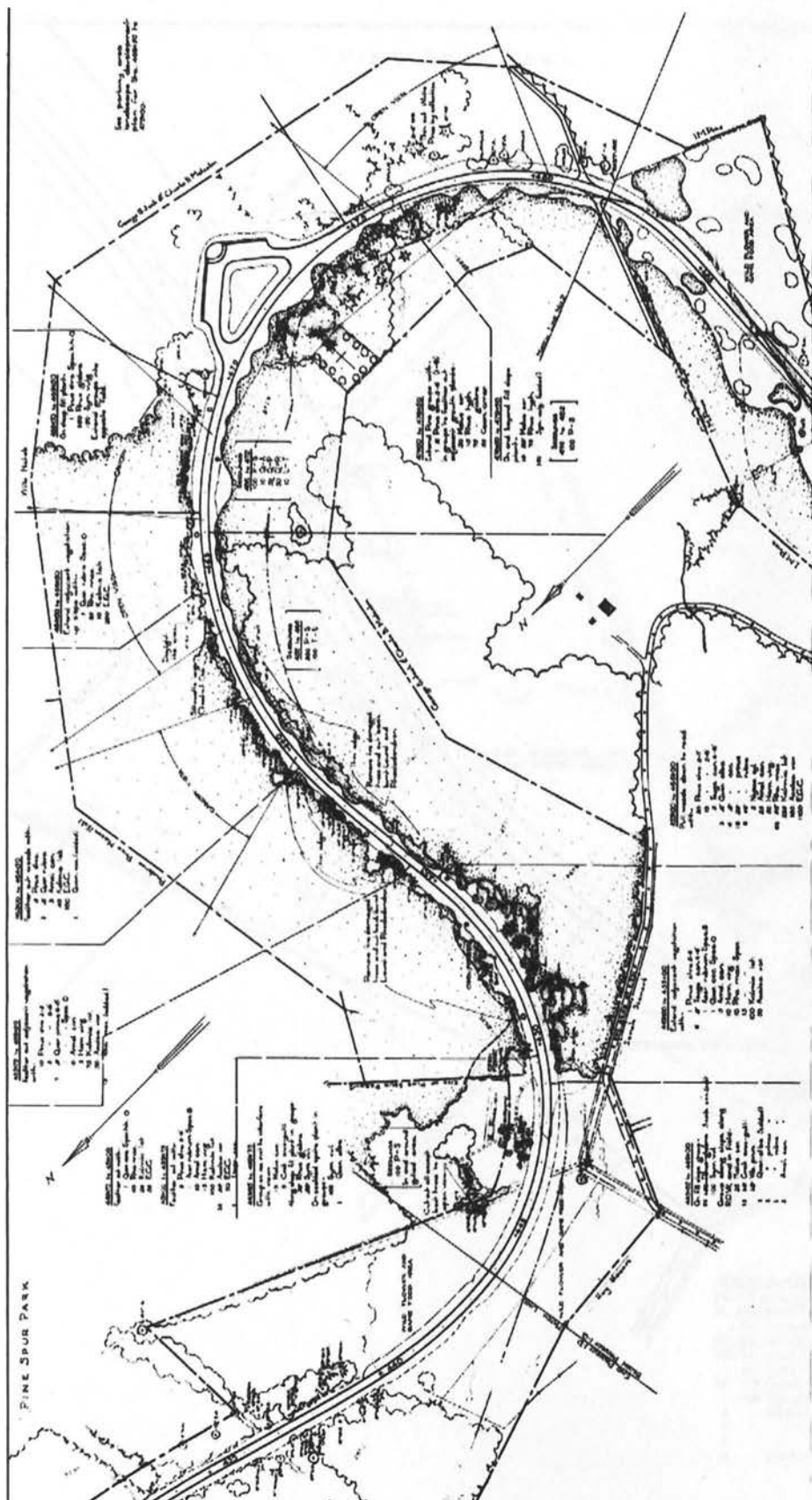
1. The role of aesthetics in controlling speed: Much more remains to be learned about the effect of the potential role of aesthetics in speed control. Hope (2001) noted, " (The BRP) is just so easy and gentle to drive at the speed limit. But if you want to get in trouble, you just try going way over the speed limit, and you'll be in trouble" [7]. It appears that the BRP's use of "line of Grace", (multiple reverse curves), gentle but perceptible vertical gradient, in phase alignment, and varied landscape scenery to control speed. While it could be argued that it is entirely the road structure that controls the speed, the landscape design should also be reviewed as a potential contributing factor. The width of the BRP's motor road also appears to be an important contributing factor toward speed control.

2. The role of speed: Future research might include comparisons of parkway and interstate design and public response to the motoring experiences. The issue of speed as associated with perception must be investigated. For example, do speeds over 50mph so limit the angle of vision that landscape design cannot be fully appreciated? Will the Picturesque approach still function successfully as a design form at speeds greater than 50mph? Finally, can the design of a road, (both its structure and its landscape) serve to calm or relax an impatient, edgy motoring public and result in safer roadways?
3. The role of kinaesthetic in road aesthetics. How much motion is too much? How much is too little? Apparently the motion on the BRP is viewed as pleasant by the motorists, and is most appreciated by drivers. It appears that the sensation of moving forward and up and down confers some pleasure to the driving experience. How best to incorporate kinaesthetic in specific situations needs to be addressed in future research. How should road structure vary in flatlands? How should road structure vary on roads designed for high speed?
4. The role of plants in the motoring experience: Plants played an important part in the positive perception of the BRP experience. Plant colour and texture were perceived at least as favourably as vistas. Many road studies have examined vistas. Perhaps more ought to be investigating the role of plants, particularly the perception of complex ecosystems in conjunction with motoring pleasure.
5. The role of gender in the motoring experience: Females and males had different views of the BRP motoring experience. Males viewed road structure more positively than females. Females appreciated plant colour and texture more than males. It was not known whether this difference was simply a matter of who was in the driving seat, (mainly males on the BRP), or a basic, gender difference. Future road research could explore perceptual differences between males and females.

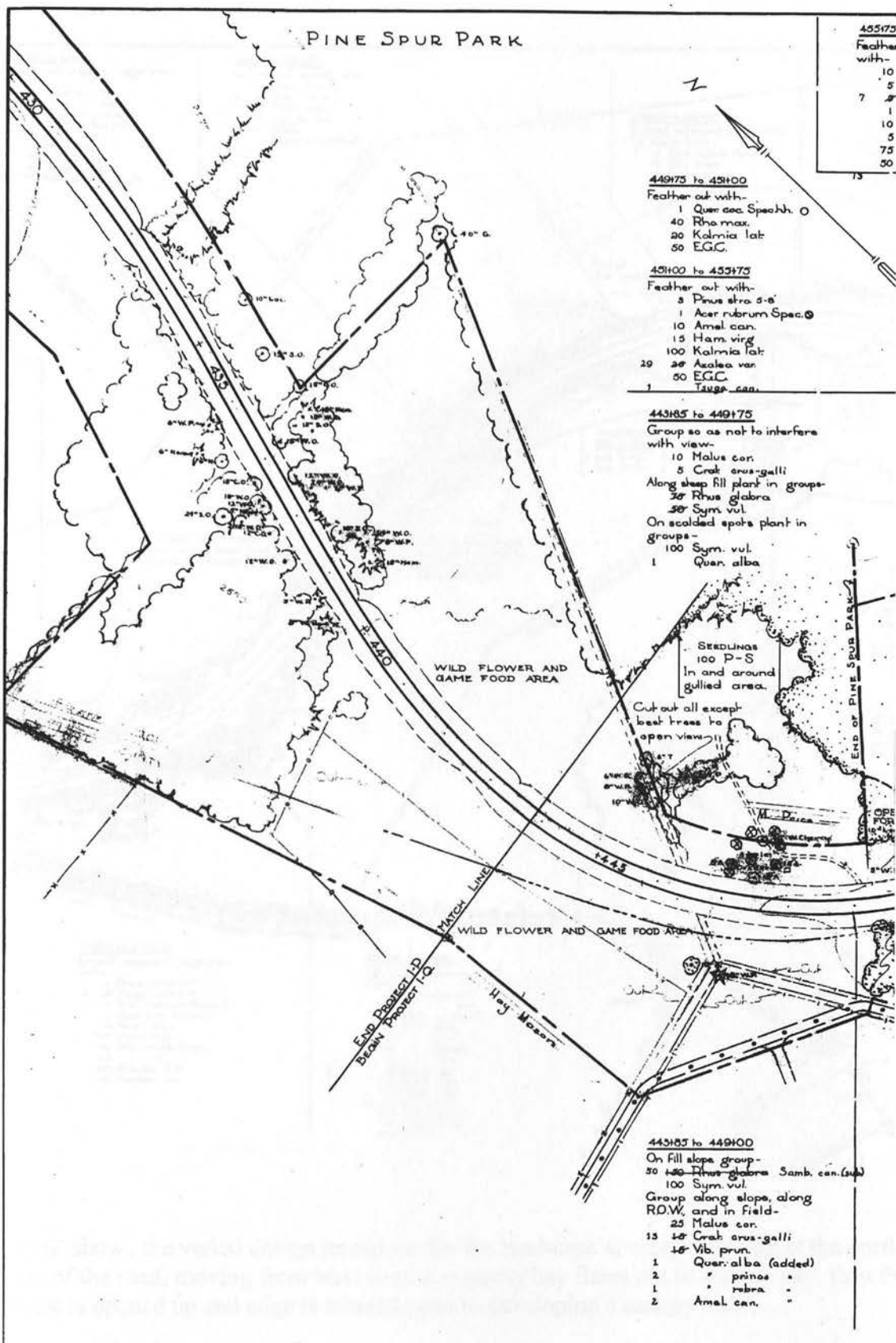
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APPENDIX ONE – QUALITATIVE MATERIALS

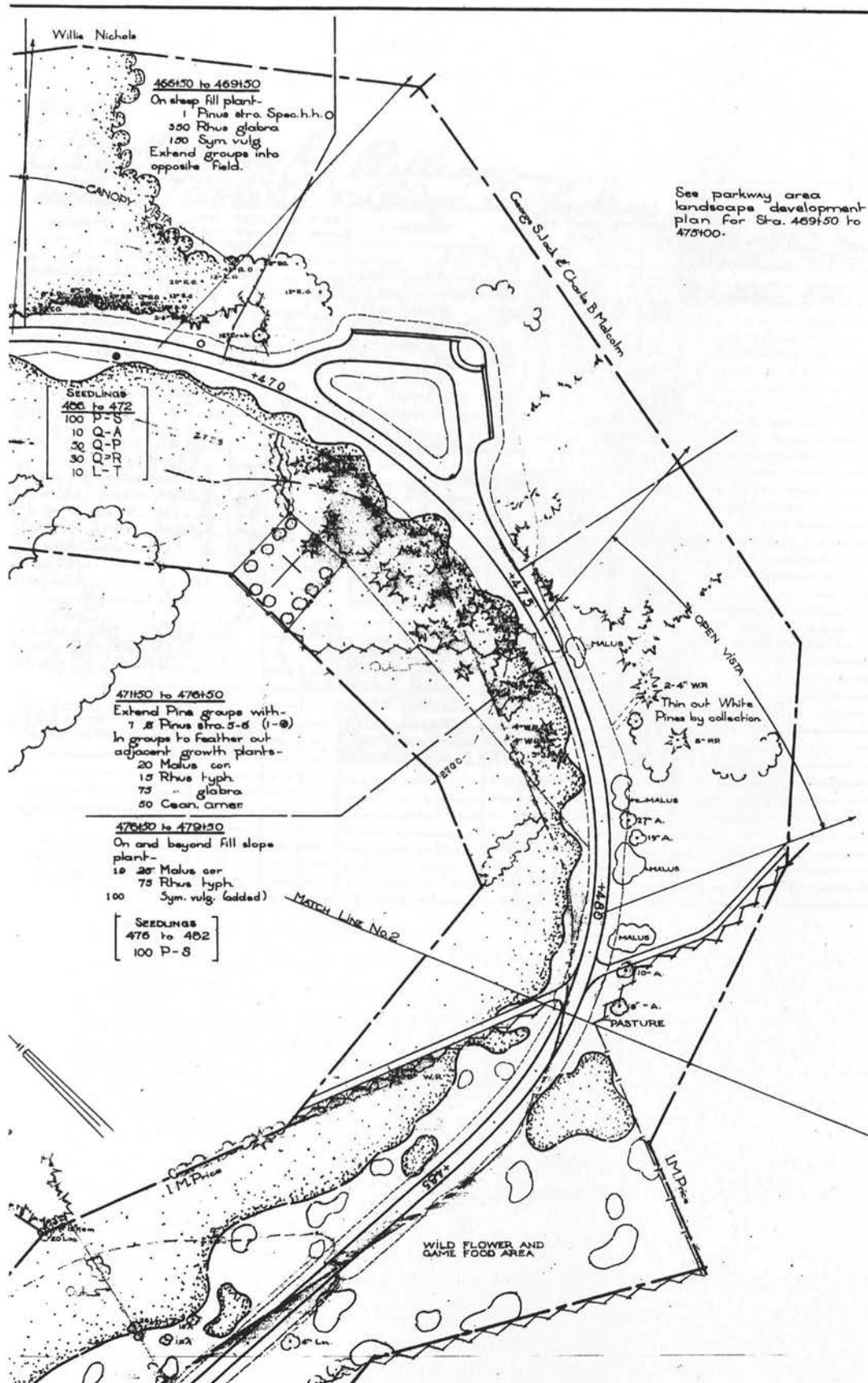


Landscape Development Plan, Section 1Q, Pine Spur to Smart View, VA Sheet 1 of 11, Dated 8-10-37, drawn at 1" = 100'. The plan shows plant lists and indicates design intentions, such as stand alone Chestnut Oak specimens, open areas for wild flowers and game food, pasture and canopy views.



1Q-1.

1Q-A shows the cutting back of trees in the lower right area to open the view. Some trees were kept as stand alone specimens. Note instructions (upper right) to "feather out" the plantings in some areas.



1Q-C shows areas to be left as pasture and for game food in the lower right of the plan. These areas would be primarily low growing species with clumps of trees, such as *Malus*. Note the asymmetry of the plant masses and irregular edge of the tree line.

1925

Abbott Stanley William

+1929 Dec
1930

NAME AND ADDRESS OF PARENT OR GUARDIAN

Edward J. Abbott IV 22 Ridge Rd. Ithaca NY

SUBJECT	No.	1ST TERM HRS. MARK	2ND TERM HRS. MARK	SUBJECT	No.	1ST TERM HRS. MARK	2ND TERM HRS. MARK
1925-1926				1927-28			
Theory of Arch.	101	1 74		Landsc. Design	215	4 74	
Elem. Design	111	3 72	3 79	Hist. of Landsc. Des.	223	3 43	
of Draw.	131	3 77		Mechanics	223	2 78	3 79
Desc. Geom.	151	3 92	3 73	Ready Plant Mat.	8	3 5	
Adv. Algebra	2	5 C		Surveying	110	3 72	
	1	11		Planting Des.	463	1 65	
	112	P		Floriculture	57	2	
Elem. of Draw.	132		3	Planting Des.	464		6 68
Hist. of Arch.	142		3	Landsc. Des.	316		6 77
English	1		3	Geology	100		3 C
Mat. of Constr.	262		2	Life & Antiquary	232		3
1926-27				1928-29			
Theory of Landsc. Arch.	203	1 65		Land. Design	150	4 76	
Landsc. Des.	215	2 65	4 79	Earthwork Cons.	226	2 80	
Elem. of Color.	132	2 70		English	22	3 C	3 C
Hist. of Arch.	243	3 66	3 69	Concrete	283	3 65	
Perspective	251	1 85	3 B	Sr. Land. Design	151	8	8 77
Math.	8	3 C		Life & Antiquary	311		3 72
English	1	3 D		Landsc. Semine	070		1 80
Prin. II	34	D		1929-30			
Water Color	332		2 65	Landsc. Design	151	8 85	
Theory Pub. Prop.	302		1 65	Hist. of Phil.	5	3 C	
Woody Pl. Mat.	8		3 B	Hist. of Paint.	425	3 81	3
P.I.				Land Thesis	152		6 90
1927 SS Agr.				Adv. Survey	211B		2 80
Floriculture	56	9/6 B		Planting Design	650		2 80
"	58	10/3 5		Landsc. Des.	070		1 80

BORN 3-13-1908 Ithaca NY

Joules 84

B.L. Arch. - CU - 6/6/1930

Stanley Abbott's Transcript from Cornell University, 1925-30. He earned a Bachelor of Landscape Architecture degree in June 1930. Cornell University Archives, Ithaca, NY

**Interview with Robert Hope
4025 Trail Road
Roanoke, Virginia 24012
Telephone: 540-977-0305**

**November 4th 2000
(Corrected per Hope's review - January 22nd 2001)**

**Interviewed by Mary Myers, Asst. Professor
Department of Landscape Architecture
College of Design
North Carolina State University
Raleigh, NC**

Please give the correct spelling of your name and your date of birth.

Robert A., or Allen, Hope H-O-P-E. I was born April 11th 1930

Can you tell me your educational background and what you got your terminal degree in?

I have a Bachelor of landscape architecture degree from Ohio State in June of 1953.

I am trying to find out more about what people studied in landscape architecture and the humanities during their time in college because we consider the Blue Ridge parkway to be such a work of art and so sophisticated and elegant in many ways. I'm wondering did you have any special focus besides landscape architecture? Did you study philosophy or literature or art and if so how would you say they impacted your design approach or professional career?

Landscape Architecture at Ohio State was in the engineering college. There were a lot of electives that you could take.

Art appreciation was one of them that I took. I know (of) no highway design courses that were available. All that I learned specifically about parkways was on the job training. But the art, landscape architects do have a well-rounded course in fine arts. Fine arts is the emphasis at Ohio State over engineering and I think that is true for landscape architecture courses through out the country, that You are primarily concerned with design, with fine arts, rather than just pure engineering.

Okay, what about motivations for you to go into the profession? Was it a love of nature that prompted you to choose this particular field and stick with it? Did you have a certain philosophical bent?

I had worked in a nursery doing some plantings, mostly field work and landscape plans during my high school days and college days. I worked my way through high school and college working for a nursery. This was during the Second World War and I liked the work. I was going on to Ohio State not knowing what curriculum I would end up in. I thought it might be a choice between landscape architecture and geology. So when I got to Ohio State I took some geology courses and the first two years of landscape architecture is just the routine preparatory courses and then in the fourth year or third year I started in some architecture and landscape architecture courses. And then I finally settled on that.

Which dates did you work on the parkway and where, I guess, because you changed location?

I started... my first day working out of the parkway headquarters as a landscape architect, was January the 5th 1956, out of the parkway headquarters in Roanoke and I worked until the fall of 1958. Then I was transferred to the central design office in Philadelphia, the eastern service center it was called, I think, the eastern design office. I was there about five years working on a number of projects in the eastern half of the United States, one at Gettysburg doing the design and preparation for the centennial observance of the 100 year anniversary of the battle, which was July of 1963. So then I did some work at Saratoga Battlefield. That was a revolutionary war (site). They had built a new visitor center. At Gettysburg there was a new visitor center built there ...near the high water mark of the Battle of Pickett's Charge. Richard Neutra was the architect there. And I did the landscape architecture, planting and walks. Then I did some work at Appomattox Courthouse in preparation for the 100th anniversary of the surrender at Appomattox Courthouse. Worked with historians in preparing to reconstruct the old courthouse which had burned sometime after the battle and that was all done and prepared in time for the 100th anniversary. Saratoga Springs, I guess that was just a visitor center and a tour of the battle field. And there was a number of other projects during that time. But in May 1963 I came back to the Blue Ridge Parkway as a resident landscape architect at the headquarters in Roanoke. But in February 1972 the headquarters was moved to Asheville, North Carolina. And during some of this time there was a new extension being planned of the parkway, from a point south of Asheville near Beech Gap to a point near Atlanta, Georgia. So I did a lot of reconnaissance work on that project and master planning. Of course, there were many other people involved, too. And we started having public hearings. The National Environmental Policy Act came along and so that project eventually died.

Which dates did you work on that project?

The law was passed in '63. A lot of preliminary work was done. There was, of course, no construction money available since Right of Way plans had not yet been prepared. But we worked all the way up until we identified lands to be acquired by the states. We had projected alignments. And the states of North Carolina and Georgia were to acquire the lands. And the federal government would build the parkway and, of course, manage and maintain it. But we had undertaken a lot of work with the states on identifying the lands to be acquired. They were about in a position to begin acquisition, or surveys that would lead to acquisition, when it finally was halted. That was about 1976. We had some public hearings in North Carolina in '76 and after that it withered and died.

Do you know what derailed it?

I think there was a lot of opposition to it in North Carolina and Georgia, primarily because of the environmental impact. Much of the route conflicted with the Appalachian Trail which would require relocation. But it was over the tremendous environmental impact that it would have on the countryside. I guess most people did not recognize the benefits and compare the benefits to the impacts. Anyway they considered the impacts greater than the benefits. And so there was just too little public support. and then there was an energy crisis at the time and money was hard to come by. And we were looking at, oh, I don't know, 100 million or more. And dollars like that just were not easy to come by in the Park Service.

After that time what did you work on, after 1976?

Well, we were involved in preparing master plans. Of course, master plans are never finished, you know. You do a master plan this year and then a few years later you get to review it and revise it. And also we did, we called it, a land protection plan which was a plan that primarily focussed on lands that should be acquired for the parkway, to control and manage the scenery, from both sides, the total scenic view from the parkway. Of course, that would entail how far should you see? How much land should you want to control? And are there other methods of protecting the land? So it was called a land protection plan with devices designed to protect the scenic beauty of the parkway. That took a number of years.

We finally had a draft about 1980 and then on up through the eighties it was perfected and lands identified and the purpose of each, and how many acres, and justification for each one. But money was very hard to come by. There are a lot of opportunity sales. It was a willing buyer - willing seller plan from the beginning. But we did acquire a lot of lands which would eliminate private road crossings which was one of the main objectives of the land protection plan. When the parkway lands were acquired acquisition would sever an ownership, or a large farm. And a public road would be on one side and the severed land on the opposite side. So that made it necessary that there be a private road that would cross the parkway to join the two parcels together. We were in the process of trying to eliminate those private road crossings. And I think there were something like 80 or 100 of them, just from a point south of Roanoke to the state line in Virginia. Probably over half of those were eliminated through purchase of these residual parcels.

Then in the mid eighties the Roanoke River Parkway came in sight and there was an effort by a group in Roanoke to develop a Lewis and Clarke exhibit somewhere down along the Roanoke River, near the river, and to relocate the zoo, the Roanoke Zoo on Mill mountain, to relocate it there. And I was a part of the focus group on that. Finally, they said they picked a site. And it was the Roanoke Land Fill which would be open land, unused land after the land fill was completed. Yeah, cheap land. And it was right adjacent to the river. So we finally got a letter from the zoo committee saying if they developed the land fill as a zoo could they get access to the Blue Ridge Parkway.

Of course, that was what they had in mind all along was access to the Blue Ridge Parkway. So we talked it over with the Superintendent. Finally, the Superintendent wrote them back and said, "No, no, we would not allow a direct access to the zoo, you know one facility...that it was not the purpose of the parkway to provide access to individual public projects."

But we went on and said if there was a limited access, scenic parkway coming out of Roanoke down the river to Smith Mountain Lake, then we would provide access to that scenic parkway. Well, the next thing we knew the city manager had resigned and he was in charge of the project and there was a bill in congress to provide funding for it and it just went on and on. Finally we started planning for it. Well, the legislation was passed. Roanoke River Parkway legislation was a demonstration project. If you are familiar with the federal highway bills... there was a list, I think it was in '87, that The Transportation Act of 1987 provided funds... I can't remember numbers now, but there (were) like 121 demonstration projects that year. Number 121 was the Roanoke River Parkway. If you recall that bill was passed by congress

Which year was that?

'87. And it was vetoed by the president. Then there was an effort to override the veto. It went through the process through the voting and all. It failed to override by one vote but through some parliamentary maneuver they carried it over to the next day and voted again on it. And it passed, the override, passed by one vote and that one vote was Senator Terry Sanford of North Carolina. He voted to override the veto and, of course, it became law and everything passed on there. But instead of developing the parkway down the Roanoke River from the city it finally, because of funds... that would have cost something like a 100 million to get it down to Smith Mountain Lake. Finally it was cut down to just a spur road off the parkway to Explore Park which made everybody happy anyway.

And you worked on the design of that?

Oh yes, we had a number of locations, you know. But then I came back to Roanoke then and worked on that and finished up here?

Would you consider the design of the Roanoke River Parkway, I haven't driven it, very similar to the concepts developed during the Blue Ridge Parkway days?

Oh yes, it has the same design character. It has one foot or so (wider), two eleven-foot lanes instead of two ten foot lanes, you see. But it extends through scenic lands, the land fill is in there but it's all capped over and is in the process of healing. But it has three overlooks and you see mountains and fields and forests. But it is only a mile and a half long so you can't expect too much in a mile and a half, you see.

What were the key issues for you, as a designer in dealing with the parkway? What were the most important aims you might have had? Even though you worked on a variety of things... maybe these are things that came into play with the Roanoke River parkway. (What were) your key goals, as a designer, for the design?

With the Roanoke River Parkway I think it would be the recreational opportunities that are provided by the parkway to the local community, as well as, the national visitor to the parkway. Of course, the Explore Park is a park that has historic thoughts behind it. Its not just the Lewis and Clark but it's the old...The foundation of it features Hofhauger farmstead and of course there are Indians and it's an opportunity to portray the pioneer flavor of the country.

But the rest of the parkway, (BRP), I think that one of the primary concerns is protecting the scenic beauty of the parkway. As time goes on there is more and more development going to occur within sight of the parkway. The one big question is how much land does the parkway need to control the use of those lands and whether or not you can encourage the local land owners to appreciate the parkway and do what's in the best interest of the parkway on their land. There are lots of opportunities for housing developments and commercial sites. And it's always a concern to manage the parkway in such a way that it protects the scenic beauty. You think, well, with a right of way that 's four or five hundred feet wide if something goes up beyond that that you don't like why, you just simply plant it up and allow it to regenerate and away it goes. That is not the answer because if that continues why, the first thing you know, between Shenadoah and the Smokies you' d just have one long forested highway and the parkway would lose its real charm and interest.

Which section(s) of the parkway were you most associated with? Was it the Virginia section or the North Carolina section or the Roanoke area section?

No, I don't know that I was particularly associated with any one section. The parkway, of course, was developed over a 55 year period so there's a lot of sections were complete and in use for many years before the final sections were ever completed. Of course, the final section was the Grandfather Mountain section. And it had been controversial for a number of years. The park service was trying to agree with the state on location for it. There was a high line and low line and a middle line. And it finally got to the point where after several governors had refused to condemn the right of way for it that the park service wanted. We finally decided that we can't keep going on forever, we've got to do something and decide. So the middle or compromise line was agreed to.

The high line went up at a higher elevation and went through a proposed tunnel on Pilot Ridge. And, of course, the mountain was owned by Hugh Morton, you know Grandfather Mountain... And Hugh just didn't want a tunnel. He didn't want that high line and the tunnel. But he loved these mountains and he thought it would desecrate the mountain to have a tunnel through it. And of course you can argue that point if you want. But we finally agreed on a lower line, the compromise line, which didn't go up or high but went around Pilot Ridge rather than through a tunnel. It skirted around Pilot Ridge and that was all right.

It added about a mile to the length of the parkway and the land, the terrain at this little lower elevation, had a lot more crevasses and ravines and things to cross. So that was something we had to deal with. We had to lower the design from 45 miles an hour to 35. So we lowered the speed and it was in harmony with the contours. It worked out very well. Now if you traveled the parkway, all of the other sections are 45 miles per hour speed limit but you get to Grandfather mountain and its 35. Its okay you shouldn't be going any faster than 35 anyway. Yeah, you want to see it and enjoy it. I don't think that it's ever been a problem. It worked out fine and it's a beautiful section of parkway.

And the Linn Cove Viaduct. We knew the rugged terrain at Linn Cove was there. We had no idea how to get through there with a road. There were several alternatives studied. You could bridge the whole thing or you could put some walls and smaller bridges and fills. Finally after about three or four hikes around there with everybody in the park service, (laughs), we finally reached a location. And agreed that the only way to get through here was just to bridge all these rock formations and not disturb the rocks.

And the Federal Highway engineers agreed that they didn't have the personnel to study that that they'd have to get some outside consulting firm and they advertised. And a conglomerate of Figg and Muehler and, I can't think of the Frenchman's name now, Jean Muehler, I think. They came up with the design and were give a contract to prepare proposals. They wanted to know first: Can it be done? Can you cantilever on a curvature like that without it tipping over? And they said, 'Yeah, it could be done.' So they got the contract to design it. And it was built. That's a tremendous project. It's the only one like it in the world on that configuration. It is a precast, segmental, post stressed type of construction. And after that was finished, why, it took about two more years to finish the parkway in that area. Of course, that was late in 87 and that was the completion of the parkway.. was it 52 years, I think.

Regarding the later designs on the parkway like the Linn Cove Viaduct, what do you think about them in terms of design as related to the older parts of the parkway? Are they true to the (original) spirit? Are they as successful in terms of the driving and scenic experience, as the older parts of the parkway? Are there things that are not so successful in your opinion about them?

Oh yes, they are definitely just as successful as the older. You know, there is some charm and interest of the stone arch structures. You know there are elliptical arches and segmental arches of stone, with the massive ring stone that were cut. But Ed Abbuehl, he never visualized one style of bridge. He wanted a variety of bridges. They should be high quality design in and of themselves but a variety. And you travel the parkway and you will see a tremendous variety and shapes of bridges. .. They were not all intended to be stone bridges but there is a generous amount of stonework and that's great. But Linn Cove there's no way you could get any type of a stone structure through there. So it had to be a new style, a new type, of engineering to make it. I think there's stone on the abutment ends and.. But it is very very well done. But the solution at Linn Cove didn't come about until late in the design and the construction of the whole Grandfather Mountain section, you see. We kind of designed and built into a problem with our back against the wall. We had to do something to get on through.

Right. When you were developing, working with the team, in terms of location for Grandfather Mountain and some of the other parts of the parkway, who were the members of the team? What was the process? Did you have different people from the sciences, Did you have civil engineers? Did you have just landscape architects, planners, geologists?

Well there were several landscape architects from the park service. Gary Johnson was one of them and Bob Schreffler. But there were engineers from Federal Highway Administration. Roy Crawford, Gary Kleindienst. There were soil scientists and one bridge engineer Rex Cocroft and I think he's probably the one who sold the federal highway on that design scheme. The precast segments placed in progressive placement . There's a story about Rex and some of the engineers Federal Highway. We would meet at Grandfather Mountain and talk and look at preliminary plans. I don't know how long this process had gone on. But the outcome usually was, why, they would go back to Arlington and study it some more. Well, we'd done that two or three times.

And finally we met down there and they decided they'd go back and study it some more. So the landscape architects went home and Federal Highway stayed on another night. They said, 'Well, you know we've done this two or three times, There's no need for us to go back to Arlington and study it some more.' They decided they would stay there until they worked it out. And Rex...that night, they were sitting around talking. Rex, he had a topo map of the area and he started circling in red the points where there were suitable footings, where it was stable enough that you could get a footing there. So he'd circle this one in red. And here's another over here. Circle that in red, another over here in red, another one there in red. Finally they decided, 'Well, there, that was the design.' They just connected the red dots with a red pencil and there's your bridge, see. So they worked it out and then they got Figg and Muehler involved.

Do you think the original design for the Blue Ridge Parkway was ahead of its time or very much a product of its time? We talked about this before I began to record and I would love you to pursue some of those thoughts.

Well, it was definitely ahead of its time. There was no prototype, no example anywhere in the world to go by. It(s) concept was a road designed for pleasure. It was not a commercial highway. Its purpose was total enjoyment of the scenery and countryside. And you know, roads, I guess had been recognized for some time that they did have value just for pleasure driving. So that was a concept that just had never been pursued here in this country. But with the thought of connecting Shenandoah National Park with the

Great Smokey Mountains National Park, this became a park to park roadway, you see. And then the thought was that along the route you would have small parks developed. So the term parkway became a term that truly fit this concept. And it was purely for pleasure and it... I don't know of anywhere else in the world where you have a highway that is designed purely for pleasure. And it was a unique concept, and (the) parkway... It's from national park to national park but it has all these other small parks along the way.

How do you think the physical design of the parkway makes it a pleasure drive? What are the attributes of it that give people happiness when they drive it?

Okay, well, the outstanding scenic beauty that you see from the parkway. But there's a lot of enjoyment that comes from the configuration of the road itself and how it molds itself into the contours. Like Stan Abbott said "It lies gently on the contours". There's no massive cuts or massive fills. It truly fits the configuration of the land. And it's a curvilinear design... Curvilinear in that there's only one or two places where you have a straightaway that's four or five hundred feet long you see. It's all curvilinear. But its gentle curves in that you have a spiral curve that leads into a curve and a spiral that leads out of it. And the curves are super-elevated curves. And you can imagine what it's like to have a super elevated curve to the right and then you transition back on a spiral and a short tangent and then another spiral into the other curve with a super elevation the other way, you see. So it's the superelevated curves and the spiral transition that leads into those. And, of course, you're going from a superelevated section to a full crown and then back to a superelevated curve. And it just flows. That's where the term curvilinear parkway comes to play. But it's just so easy and gentle to drive, at the speed limit. But if you want to get in trouble, you just try going way over the speed limit, and you'll be in trouble.

Right, the design prohibits it or inhibits it.

That's right, that's a design characteristic of the roadway itself, is speed.

Who was responsible for the curvilinear aspect of it? I know that the landscape architects worked with civil engineers. What was the give and take in that relationship?

Well, that was before my time. I'm not sure who all was involved in it. I had heard a story that Oscar Cozzani who was the first engineer on the parkway staff...he was a railroad engineer, designed railroad beds and railroad lines. And that's a concept that grew out of the railroad, you know, how the curves are super elevated and you have spirals. And if you're not careful, why, you'll design a railroad that the cars will upset. And there's certain speeds the railroad cars can travel on a certain section of track. And it was on that concept I think that maybe Oscar Cozzani was instrumental. But the Federal Highway, Bureau of Public Roads, engineers, you know, that's all common stuff with them. Except, you know, nowadays it's everything is straight, as far... The concept for a highway now is that you go straight for as far as you can go and then when you come to something then you put a curve in, see. But that's not the way to design a highway, a parkway anyway.

Do you think the original concept for the Blue Ridge Parkway continues to be adhered to today in the management of the parkway?

Well, I guess the one that's probably the most subject to interpretation would be how to manage the vegetation along the parkway. Vegetation management. There are considerations that come to play nowadays that were not there when I was around. One

of them is the rare and endangered species of vegetation, primarily. There are some rare plants.

I'm not sure that we understand fully how to manage some of those. And that's probably why they are being, you just simply set aside that area and don't meddle with it. Because you don't know how to manage it, you have to learn that. There were some sites where Gray's Lily was prevalent, pasture lands, primarily. They were taken out of pasture and allowed to regenerate. But I think after so many years you have to mow them again so they cannot fully return to mature vegetation. You can't allow them to go that far because that in itself would be harmful to the Gray's Lily and there may be other rare species. Then

there's wetlands. You know, a farmer worth his salt wouldn't allow a wetland on his property. He'd have to drain it you see. That's the first thing you do with a swamp, is you drain it. Oh, there were a lot of swamp draining projects along the parkway. They used to just dig swamp ditches all the time and try to drain them. Oh, but that was a mistake, you know.

Did the parkway have a policy about that, do you think? Perhaps it changed over time. Now it seems to be more concerned about rare and endangered species. But did the parkway have an approach to the drainage of farmland? Did it encourage or discourage it? Were there problems that you are aware of with the parkway itself causing drainage onto adjacent lands.

I know of no problems where the parkway, where the drainage that was collected from one side and through a pipe and out the other side, that caused problems to the other side. But there's a lot of cases where the parkway was the leader in the conservation movement. Primarily for scenic beauty, you know. I don't know whether you've ever seen this.(shows a copy of the spec). that's one of the...these are the plans...that talks about trying to preserve areas recognizing that a wetland did harbor certain species of wild flowers and animals that were part of the parkway and they should be preserved for public enjoyment

Well, you know Mabry Mill. There was a question of Mabry Mill should be torn down. You see, the states acquired the private lands and it was their responsibility to get rid of buildings, old home sites, you know, to clean up the land before... That was part of acquisition was the disposal of old buildings. Well, they had acquired the Mabry Mill property and were in the process of destroying the mill, you see, as part of that. And nobody quite caught it except, I don't know whether it was Van Gelder or Ken McCarter or Mack Dale, somebody come along just as they were getting ready to tear the mill down and he stopped them. He had enough mind to go and stop them. You know, . that s the first thing you do is stop. And he got in touch with the superintendent and they got in touch with the state. And they said "Okay okay we'll just leave it. Okay, It 's your baby now, you look after it."

So that saved Mabry Mill. And it only came about because Mack Dale was on his way someplace to patrol that section and instead of going the one direction he thought "Well I'll just go south here. No, no, maybe I'd better go back north." And he decided to go back north just as they were getting ready.. the crew was getting ready to tear it down. If he'd made the other turn it would have been gone you see.

In the specs that you just showed me, do you know what the dates of these are?

Oh, why didn't they put dates on things back then? This could very well be 1938 or so. This was probably a product of, what did we say, Al Burn's? Malcolm Bird's? one of those guys, but I don't see a date on here. But it's from the very earliest days of the parkway. When they were developing the thought of parkway land use maps and the symbols that would be associated with them, the indications for fences and bridges, all the details. It gives the plant materials list. Goes into all sort of minute detail here on how to delineate all these plants on it, see, looks like there are dozens and dozens of symbols for each plant. You know, instead of, course, there's no way you could label each plant on a map you just had to do it with a spot, a little symbol. But I don't think there's a sample of a land use map in here. You've seen land use maps.

Yes, I was wondering about that. You mentioned that there was sensitivity... and by the way for our record, let me just mention that we are looking at the Planning and Complete Landscape Development Specification. Problem and Program Section One: Purpose of the Parkway, Chapter One, Division A, Section One, Sheet One. You mentioned that there was sensitivity even in these early specs to issues of certain species occurring in wetlands, etc. and the need to hold on to some of the forestland, etc. Do you think that this came from the landscape architects or from collaboration with other scientists within the service? Where do you think this approach came from, this wording?

I think early on it was primarily landscape architects.. I don't know that the other scientists had gotten into that until later on, probably up into, even into the eighties. You know, I think landscape architects are...you know, they're not just pansy planters and arranging plants around the home sites. They have a lot broader understanding of natural systems than that. So I think, there was an appreciation there by the landscape architects toward preserving natural sites and vegetation.

That was one of the primary design features of the parkway, the design concerns, was to reduce the scar. You know, the scar was a great concern for the landscape architects. You wanted to build this parkway. If you scar up the whole countryside you've defeated your purpose. So you have to build the parkway, it has to be built. And the only way you can build a road is you got to cut and you have to fill, you cut and you fill, you cut and you fill. The alignment and location is a primary consideration as well. You know, cutting the least amount and filling the least amount. And you want to have the roadway as much at eye level to the countryside as you can get it. And the steeper the terrain the more difficult it is, you see.

That was one of the primary goals of land use maps, was to, I don't know, (pulls out land use map), this is Grandfather Mountain here. So you would go through this process a number of times. You would take your base maps and make sketches and show vistas. See there's a note to keep fill slope clear, there's the view line. And there's a line there that in order to keep that view line you'd have to do some clearing in here, you see. This is of course, on the down slope side. So you'd have to clear some of this. There, if the cut itself or the fill itself took care of it there. There's a huge rock, right there, you see, that was part of the... And then you would have to do a little bit of selective clearing behind the rock. There are some more rocks there that were to be exposed so that as you traveled along... You see, that line there is the vista line and you'd try to expose a few of the rocks.

Are these your notes?

I think so. There were a number of people working on this section at the time. So I don't know whose the red is. But they were working under my supervision, I guess.

Yes, I see your name on the drawings, We're looking at parkway land use maps for section 2H at various stations. Is it a ten mile stretch?

Seven and a half miles.

it is about 7 ½ miles in North Carolina on Grandfather Mountain Section. The date of the drawings is 4/1988 to 12/1993.

Well, you have several years of just working prints. This is a print of the final set, the completed set, with a cover sheet. It was finished, well, a lot of the data was 1988. I guess they were finished about 1995. After I retired, I finished this set.

They made you keep working? (laughs)

I wanted to finish it, see. Well, I just couldn't leave the parkway without this final set of land use maps.

That's great. That's dedication.

But, at the same time we were planning and developing this Tanawa Trail which went from Julian Price Memorial Park all the way around Grandfather Mountain, a foot trail and tied in with Beacon Height. This became part of North Carolina's Mountains to the Sea Trail. We were aware of all that and so we were determined to develop a trail around Grandfather Mountain. Of course, there is an alternative you can go up over the summit of Grandfather Mountain too... or you can go around the parkway. To get a good alignment for the trail there were some places where it was best to go off parkway land for just a hundred feet or so, particularly in the stream hollows. So there's one there, there's one. There's one. Here's one here, Here's one. This is at Rough Ridge, we wanted to get up on Rough Ridge, tremendous rock outcropping that the trail would go through and down and so..

Would the Park Service try to acquire those small parcels of land then?

Yes. We had to get trail easements and so I worked up a whole scheme of those easements. And I went to Hugh Morton and had a nice conversation with him and he said "Well, I'll just donate the easements." It didn't hurt Grandfather Mountain's lands and it was beneficial to the parkway. And so he was willing to donate those easements. But the trail is protected you see and he understands, probably more than anybody, the value of, you know, legal documents that way...

Now here's a place here where we had to acquire a little piece from him and that also accommodates the trail. He said, "Well, if this is gonna be... it's probably better that you pay me for that, see." So we bought that, you see, all the other easements he was happy, and it was only proper that the government pay for that one. But all the other easements were just donated easements.

So would the trail design be part of your responsibility, as well? You said you wanted to locate the trail.

Yes, when the parkway was being funded and built around Grandfather Mountain we knew we wanted a trail, a foot trail to connect all the overlooks and so that you could

better see the countryside. But the money wasn't set aside. There was no project money identified for the trail. So the superintendent decided to take it on as a project and he convinced the Federal Highway that the foot trail was an integral part of the parkway, see. And so it was funded.

When you talk about the Federal Highway for this project, when did they become involved with the National Park Service? Was this an outgrowth of the Public Roads?

Well, yes. In the early days the Federal Highway or Bureau of Public Roads at that time was...there was an agreement between the Park Service and Bureau of Public Roads that stated that in all I guess most national parks the design and location is the responsibility of the park service and the landscape architecture was the responsibility of the park service. But the engineers of the Bureau of Public Roads would be responsible for the engineering of the roadways. Now the Bureau of Public Roads was not involved in highway engineering. They were just the banker for the state. The state would get federal dollars. And the federal highway administration or the Bureau of Public Roads would simply prepare standards and funnel the money to the states. And the states had the engineers that would design the roads but there was a unit that was involved in federal highways, you know, strictly federal highways or highways on federal lands So that's the Federal Highway Administration unit that I'm talking about, this unit created to deal with highways on federal lands, that's national forests and national parks. They do a lot of work around Washington DC. You know all those parkways and roads are federal highway projects.

How did you find them to collaborate with, to work with?

Oh, they were great. Most of them were just right in there with the landscape architects. Whatever the landscape architect said, why that that was good enough for them and they had their engineering concerns and we knew they had to be met.

They were the administrators of the contracts, with contractors, not Park Service. The Federal Highways administered the contracts. So the contractors would deal directly with them and not the Park Service. The Park Service kind of oversaw the work. Well, the Park Service had administrative people there, too. We have a landscape architect, Al Hollister, and he works with all the Federal Highway projects all around, the Blue Ridge, the Smokies, Cape Hatteras, Natchez Trace...and every place, you know. But the primary responsibility for the contracts was the Federal Highway. And I don't know of anytime that we ever had a problem.

One time on the Route 24 bridge, down here... Roy Crawford was the Federal Highway engineer. And I was the landscape architect for the parkway and headquarters was in Roanoke. and Troitino was the stone mason. Well, they did the arched bridge stone and it was a long elliptical arch and you had to get each of those joints perfect, you know. And on an ellipse there's no two that go to the same point. Anyway, right up in the very top of the soffit there were two or three good size stone up there and you could tell they were not quite radial, just a little bit off of radial. And it took a pretty trained eye to see that.

And Roy Crawford came to me one day and he said, "You know those stones just don't look good, don't look right." And I said, "Well, see if Troitino will take them out." You had to jackhammer them out of there and clean 'em up and put 'em back. And, (laughs), just for an inch or so, you see. Well, Troitino said "No, he wasn't gonna do it. He wasn't gonna do it." So Roy come to me and wanted to know what he should do.

So I said, "Well, I'll go talk to Joe and see if we can talk him into doing it." (laughs) So I go and we meet out there. And we walk around the bridge and we talk and we talk. And I said, "Joe, you know those stones just aren't right. Now you don't want to go down in history of the Blue Ridge Parkway and that be the only bridge that has keystones that are not radial. Now do ya, Joe?" (laughs) And finally he says, "Okay, okay, okay I'll change them for you, but not for him." You see, he would change it for the landscape architect but he wouldn't do it for the engineer. (laughs)

(Laughs) That's quite a compliment. That's great. It sounds like there was a lot of dialogue between (you)... even though the engineers were more responsible for the actual contracts. I'm assuming the landscape architects had some supervision. But maybe they were second, and if it wasn't right...

Well, right, right. One thing you should never do is get in between the administering of the contract and the contractor. You got to stay back. You can have a part to play in that but you have to do it through certain people. You can't just do it directly. The landscape architect could never talk directly to a contractor. And generally, all such conversations, they are there any way. Everybody's there. So when it comes to making a decision, it's the Federal Highway engineer that makes the decision, you see. Now, I don't know what I would have done if Joe had refused to, (laughs), change those stones. We'd have had to go up there to do some measuring.

Right. Would the drawings... were they not in conformance with the drawings or the specs, so you could have referred back to those?

Well, I suppose. But I don't ever remember doing that. I don't know how much you know about stone work. The arched ring stone on these big bridges was all dimensioned masonry. Now dimensioned masonry means that every line has a dimension on it and you have a certain allowance for a joint width. And I've done ring stone details... These were large drawings with all the measurements of the ring stones on there. I don't remember who did it on that bridge. I don't think I did it. But you did have a drawing that had all those dimensions on there.

But a contractor, no way he could cut the stone to that precise dimension. You would put 10 and ¼ inches and you know, he may hit it pretty close and he may not. Well you know, If he missed it on this on he'd have to make up for it on the next one. Or there's a slight little 1/8th variation in the joint that he could do. But he's got to stay on track. If he starts to build up an error and get off, he's in bad trouble, you see. But there is just that little bit of leeway. And I don't know how it was on this bridge but mainly it was visible. You could see that that rock was not radial. Even though it was an elliptical arch, you see. You could tell they were in there sideways.

How did it work with the planting contracts or specifications? I am interested in that part of it. Was that administered through the National Park Service? Maybe for your sections you didn't need to bring in additional plants but I'd like to know how it worked.

Well, there was very little planting done on the parkway. Now you'll see in here all these specifications of plants and some of the older land use plans you see notes where there's 45 of this species, 50 of these, 100 of those and it always gives you an area through which they'll be planted. I never supervised any planting projects quite like that. Most of the landscape treatment, vegetation of the roadside was done with an ax rather than a shovel.

It was the little roadside, the vistas, the little grass bays, Ed Abbuehl always used to say "Well we landscaped with an ax rather than a shovel."

But there was a period of time when you would have on a new section of parkway, If it was through terrain that really required some planting... Now the Roanoke River Parkway there was some planting done there because we wanted to revegetate some fields. And with the landfill we wanted some buffer between the landfill and the parkway. So there was some planting done there. There was two kinds of planting. There was some seedling plantings. We had a volunteer day one Saturday and I forget how many, seedlings were there. But fifty people turned up to plant seedlings. And they were given some instructions.

Most of the seedlings were Oak and White Pine and some other species. And they were given an area to plant those in. So they just planted them. Because 75 % were not going to survive anyway. But it was an effort to regenerate some fields that didn't want to remain open. But there were a few places where some larger trees, larger caliper size were planted.

Chances are, rather than plant seedlings, all you have to do to regenerate a field is to stop mowing it. If you stop mowing it, it's gonna regenerate on its own and in five or ten years its gonna be up and you'd never see the seedlings you planted anyway, see. So you're wasting your time planting seedlings, as a general rule.. Now there may be times when you want to plant some seedlings. But I don't know how successful that volunteer planting day was. I think so many of those didn't survive. And you had people planting right on top of somebody else. But it was a good day, you know. We had a great time. And there was no harm done. If you gonna do something make sure first that you're not going to do any harm. (laughs) I've never been back to see what the survival rate was. I've been afraid to do that.

Now was Ed Abbuehl still working when you came into the Park Service?

Oh yeah, he hired me.

Okay, and did you overlap with him at all on projects?

Well he was my supervisor, my boss. First him, then Art Byer was my boss for awhile. Then I went to Philadelphia and, let's see, I guess Ed Abbuehl was transferred to the Philadelphia office. But he remained in Roanoke. So most of his responsibility was, like the Georgia Extension, the Grandfather Mountain section, some of those things. He did some other areas. But Art Byer was on the parkway staff. Then in 1963 I came back to the parkway. And Art Byer, I think, he went to Philadelphia. I know Ed Abbuehl went to Philadelphia. I can't remember now just how it was. But there was a time when we kind of overlapped. But then they went in the design office.

Ed Abbuehl retired about 66. In about three years he retired. Sam Weems retired. And Art Byer got into planning. And he worked out of the Washington office. Then when the Denver office was established out there, he went to Denver. Relocated to Denver and did a lot of projects out there. Sam Weems retired and went to Australia. And he established the National Park Service of New South Wales in Australia. And Ed Abbuehl went over there for a year and helped him. And the main thing they accomplished was the legislation for a park system, for a national park service, park system, in New South Wales.

Now when you came you were fairly young so did you feel like you were apprenticed under Abbuehl?

I was always an apprentice under him, always.

Stan Abbott had left the parkway. He was superintendent at Colonial, you know, Williamsburg, Colonial Parkway. And that's where he retired from there. But in private practice then, he was with Carleton, in their practice for awhile. He did some planting plans for the interstates. And one of the interstates was a planting plan was for Route 64 where it crosses over Afton Mountain. And Stan Abbott did a planting plan for that. And he came down and we talked about all these things, you know to refresh his mind. He wanted to know some plants that he could use there that would help stabilize some steep slopes. I remember telling him about Indian Currant Coralberry. Do you know Indian Currant Coralberry?

Um hum. And had you found that to be a good erosion plant?

Oh yes. There was a lot of it native to the Peaks of Otter around the dam site down there. It was growing naturally so we spread it all around some more.

So would you say a lot of your choices, and maybe the choices for these earlier landscape architects, for plants for erosion, bank stabilization or other purposes, came from observation, or came from reading or a combination, or from your own educational background?

Well, yeah, now you can see a lot of those plants that are on the slopes now today. You can go up toward Peaks of Otter, for instance, and you'll see New Jersey Tea, you'll see Sweet Fern. You'll see those plants just growing naturally along the cut slope. Course, some of those cut slopes, they keep them cut. Big trees don't normally grow on those real rocky slopes. But I don't know ...

You learn those plants from things like this and from looking up in a book. When I was in Philadelphia... I was up there about five years and I spent one whole winter, just on my own time, developing a plant list of plants that are native to the Eastern United States. (shows document) I did it for my own use, you see. I researched through Rehder's manual and some other books. (*Manual of Cultivated Trees and Shrubs* by Alfred Rehder)

I'll vouch for all of those plants, they're native to the eastern United States, some place you know. The other landscape architects around the service center were doing landscape designs, planting plans. They didn't have much information on what plants were native. They were used to nursery varieties. Well, that's not where you go. Nursery varieties are horticultural varieties. They are what grows best that's what a nurseryman will plant.. And what the nurseries have available is what you have to use, you see. There are native plants that nurseries handle but you might have to use collected plants, or do something else. Of course, those are all arranged. ..there are deciduous varieties, different size groups. Then there are evergreen varieties.

Did the Park Service have a policy on collecting? For example, if there were things used on the parkway...

The policy was not to take plants that needed to stay where they were. You wouldn't take from one place and at the detriment of that place (and) put it somewhere else. But there is a policy and I suppose its still in effect, that only native varieties of plants are used in planting plans.

Yeah, and the plants have to be native to that particular neighborhood or region?

Right, right. You could stretch on out someplace and get a plant... Now, I would assume in the botanical order of things that a certain species of plant is the same here as it is anywhere else. But maybe not. Elevation may play a part in it, you see. Plants that are grown at a lower elevation you might not want to dig them up and take them up at a higher elevation and plant them. They wouldn't survive even though it's the same species as one that's growing naturally right next to it, see I don't know what it is in the botanical order of the cells of the plant that determine that.

In the routing of the parkway, in some places it seems to go through what seem to be masses of azalea or mountain laurel. I guess those were seen as scenic experiences. Now would those have been planted areas do you think, or naturally occurring?

No, they wouldn't have been planted. Now there may have been some rhododendron and azalea planted in certain areas. But you know the parkway extends through a number of geological formations, you know. You got the high mountains, the forested mountains north of Roanoke. On the north end you have some high mountain meadows. Then a lot of it is all forested. The adjacent landowner is the National Forest service, you see. Then you drop off the mountain in to Roanoke Valley its all private land. And you climb back up on the mountain at Adney Gap and you got the high mountain plateau That's the lived in part of the parkway., you see Its all privately owned land, farms and meadows.

Then you get on down into North Carolina and you start working your way out of that until you get back into some other high mountains. Then you go through the Black Mountains and the Craggies and around Asheville and back up around Mt. Pisgah. Then you get into the high rugged mountain. The parkway parallels the Blue Ridge all the way down to, and its right on the crest of the Blue Ridge until you get to a point on the north side of Mount Mitchell. Then the Blue Ridge kind of veers off to the left and the parkway then starts jumping, skipping over the parallel ranges of the eastern Appalachians. The Black Mountain is, of course, one primary mountain there and then the Craggies and you get on south of Asheville and you've got the Balsams and the Plot Balsams. These are the parallel ranges of the Appalachian and the parkway is skipping over those, you see. So there's a lot of different terrains that are... I guess that terrains is the right word to use, that characterize the parkway.

And, of course, the vegetation changes a good deal, too.

Right, right, but that was Stan Abbott's primary term, "variety and interest." He thought the overall design objective of the parkway was this variety and interest. Had to have some interest. Now I don't know what constituted interest. He knew what it was, You know what it is. And I know what it is but I don't know how you describe it . It's interest.

I guess (that) what you have when you drive the parkway are areas that are closed, that open up, distant views...and big swaths of plants that bloom, etc. Was there a certain ratio of interest or change or variety within a given stretch, say ten miles shouldn't be enclosed woodland on each side? Was any kind of approach to that written down or specified?

Well, there was but I don't' know that it was orchestrated to the degree that you indicate. It was just a lot of it there and it was the skill of the landscape architect in locating the parkway in such a way so that you see all of these. And there is that variety, And you

may move the alignment a little bit to get it out into some open areas or if you've been through a lot of open areas, you may skirt into some woodland. And I think there was a lot of thought given to which, if its just ridges, and the interplay of ridges, which side of the ridge do you want to be on, see. You don't want to be on the sunny side of the mountain all the way. You may want to once in a while to go on the shady side even though you are gonna have some snow to contend with. But the parkway had always been considered as a summertime road, not a winter time and you could close it anytime you want because its not necessary to have it for winter travel, year round travel.

I have a number of questions in my mind that came out of our conversation here. Well, it sounds like there was a lot of responsibility given over to the project landscape architect in terms of their say, on their section of the road, where the road should go, in terms of west or east side of the mountain or how much variety there should be. So it was based on the individual's judgement. Is that fair in saying it was based on their individual judgement?

Well, I guess pretty much but generally there was discussion among all the landscape architects about those kinds of things.

Where would those discussion take place, in the office or in the field?

Most of them was done.. there was a lot of field reconnaissance. Now you understand, In the early days of the parkway, there were no U.S.Geological Survey maps. Mapping was a major problem. You can't plan a location for a parkway without some maps, you know. The only other way is reconnaissance, field reconnaissance. And there are some sections in the location of the parkway that had no USGS maps, And you know, 1:24,000 scale, the seven and a half minute sheets, you know. They didn't come along till many years after the parkway was begun. No, they had 1:500,000 scale maps (laughs) and they were just useless. So I don't know where the process... Now don't let me drag you through something you're already familiar with.

The process was that if you had the geological survey maps, you would project a line on those maps, just the landscape architect, from reading the maps, the vegetation, field reconnaissance, you check it and you end up with a line. Once that line is field checked by you , maybe other people involved, the Federal Highway and you feel fairly comfortable with it. Those maps then are turned over to the states. The state is responsible for acquiring the land. And the states were a major player in the development of the parkway.

The two states, Virginia and North Carolina. Some states had a little keener interest than the other state. I think North Carolina had a little keener interest in the parkway than Virginia did. Because the location through Virginia was pretty cut and dried. But North Carolina it wasn't' such a sure thing in fact that was a great controversy over locating the parkway. Tennessee thought that they should have a portion of the parkway. Are you familiar with that? Harley's, (Harley Jolley), up on that. Finally it was determined that the parkway would stay in North Carolina. They didn't want to go skirtin' over the Roan Mountains and down.. in fact one of the senators from Tennessee was asked "Well where do you think the parkway ought to go?" And he said, "Well, right down the state line, just put it right down the state line." (laughs)

But North Carolina made their pitch on the basis of scenic beauty. I don't know, there was a great map made of the North Carolina portion which has disappeared. It was a big scroll. It was kept in a big tin about so big. It was kind of an artist's, you know, like the

weather maps you see on TV, a 3-D. But it was all colored and showed the parkway location out through the Craggies and all... and North Carolina did that, And they produced this map at this great meeting and that's what secured the location in North Carolina.

Now where was I? Oh.. the process. You'd project a line and the maps would go to the state. Then the state would begin preparing surveys. They had to do land surveys. Some of the early surveys were done on plane tables. You know, plane tables. You know, it's a flat table you take it out in the field and you set this instrument up there and you take sightings on different features, and you scale them off and read the distance between the cross hairs and you plot them. And they're done rather artistically by whoever's running the plane table And you take levels and you spot and eventually produce contours and you've got the maps. Then those maps would come back to the Park Service and the Park Service would trace them with the contours and produce what they call development plans. Have you seen the development plans? They are the long, five, six foot long sheets. They were all drawn free hand by landscape architects, for the whole parkway. Now they should have those in the archives.

What would the development plans have been used for?

That was used to finalize a preliminary parkway plan. That would show the land to be acquired, the alignment and there's other notes on there. They were preliminary to the land use map. Those maps were then turned over to the Federal Highway Administration and they would then use those to produce the construction drawings. They would put the curve data and the spiral data and the elevations and fine tune the thing, you see. But these development plans were graded out freehand by landscape architects. You know what I'm talking about when I say graded. Well, you got the contours. You have a location for a road and you would grade it by showing proposed contours. You'd show on there existing and proposed contours. That's what we mean by grading, You would grade the road. In other words, you'd have to know where you are vertically and maybe to do a profile. So it would be a reasonable grading. I mean within a foot or so of actual and you'd know how far up this cut slope went and how far down this fill slope went.

And did you say that was done in the field? or back in the office?

They were done in the office, off of the hard sheets.

Freehand grading?

Yeah. It was done freehand, freehand. You know, you'd trace the contours. Now the center line of the roadway, they may have used a spline line or something like that. You know a spline is, okay, you'd use a spline line to get a curvilinear and then you'd grade the cuts and the fills. So you knew what this three-dimensional picture was going to be. Now nobody but a landscape architect could understand those, well, you know engineers. But a lot of other people wouldn't know what you're looking at, if you see a proposed and an existing contour.. But those were called development plans. Oh, those are great things. You haven't run across those in the archives?

I might have seen them, I don't have a recollection. I will be looking for them next time I go.

Be sure to look for them. And if they're not there, you know, somebody... I want you to let me know if they're not there.

They are probably there. I know they have a couple of storage rooms I haven't had the time to go in. They are not really organized and you basically have to pull a lot of stuff out and put it back to find what you're looking for.

I guess the important thing is: Does the archivist have a sensitivity toward these things?

I think she is not going to let anything go.

Well, that's the best thing, if you don't know what it is, keep it. You know, until someday you'll find out what it is. Somebody will be able to put it in its proper place. But the important thing is to keep everything you can keep. Don't throw anything away. That's always been my motto, don't ever throw anything away.
(laughs)

Well, when you are working with projects like this you definitely don't want to.

Well, you don't know what it is going to be, until years later.

Or even years beyond that, when somebody like me comes along and asks "Well, why (was) that decision made? Why does it look like that, physically, in the field?"

But in doing the land use maps you'd have the construction drawings that the Federal Highway would do. Then it would go back to the states and they would do the right of way maps. They would do the final drawing for the boundary. And of course, you'd have the deed. The deed would specify each meets and bounds, and corners, and all that. So you'd have all those sources of information to check. But those development plans that were drawn freehand probably were the one source that you always went to if there was a discrepancy about something. At least that would tell you what the landscape architect had in mind, see. And it may not have turned out that way but that's what the landscape architect had in mind. It would have little features there that were supposed to be protected.

And then the engineers would take that plan and adjust it or refine it for the contract drawings?

Oh yes, it was a freehand map and it was a guide to the engineers to design the road, here. Here is where you're supposed to go with the road, see. And they would go back to the states. This is the land that we want you to buy. You know there was a lot of cross discussion. It may not have hit perfectly in all instances but that was about the way it would turn out.

You mentioned that for this set of plans that you worked on, It was this set that came first and you would spend four or five years maybe before it went into final document stage?

Well, that was just our own... we just didn't spend the time to finish it, you see. It should have been done. Usually you would do the land use maps... you might even start them when the roadway was under construction. But when the roadway was finished then you would expect them to be available to guide vegetation management. **(tape runs out)**

We've been looking at the final drawings for the 2H section, dated 4-13-88.

And finished off with the comment that instead of planting to bring the wood line down the slope, that probably what happened, is that the mowing simply didn't occur there.

Yeah, this just happens to be the only set I have here at the house because I worked on it here. But there are books of them. But I...

Sure, I'll ask Jackie, (Jackie Holt, the BRP archivist), about those.

But, you know, roadside vegetation. You can see, there's the drainage comes down there. There's an inlet where there's no effort to make that a vista of any kind. But here there is, there's a rock there. And there's a 12 Inch tree shown there. Generally, you would identify certain plants in certain areas simply to help orient you as you were trying to find your spot. And here are some more rocks that move forward to a parking area. But this is the managed vegetation line that comes in and goes back around the overlook.

So what was your thinking, when you were designing this? You were exposing things like the rocks and you've got parking, bays, and overlooks here. What were you intending?

Well, overlooks were generally picked and designed when the roadway was being designed and built. So that overlook, when this map was being made, existed, you see. It was there. I guess one way of looking at it. These are what you consider to be 'as built' drawings. And they pull a lot of information and display it on one map, like the boundary. You've got the corners and the meets and bounds and adjacent property owners. You have contours. Now it's a 25 foot contour interval but you can get a little sense of the shape.

There's Boone Fork which comes off of Grandfather Mountain and down and under the parkway. And there's a footbridge, right there. Those are excellent footbridges. Most of the footbridges, the beams were made out of laminated wood beams. And they were generally 50 -60 feet long, see. Well, you can't get those up through the woods. So they were all set with a helicopter. And they would truck them into the overlook. Then a helicopter would come pick them up, bring them up, dangle them down through the woods with a tether rope. . Somebody would get a hold of the tether rope and swing them around and maneuver them through the branches and finally end up on the piers. But that's the way all these bridges, footbridges through here were set with the beams with the helicopter. And the contractors really saved money doing it that way.

Let's see... here's another rock, a big rock here and some more vegetation. But it's primarily just a vegetation management plan. But this is what the people who are managing the parkway would need to do their work.

I know when you got involved with the project, the approach had already been established. Is there anything you might change about the design of the parkway, if you yourself were doing such a project today, in terms of location, design, scenic experience, objectives?

No, I've never thought of that. Never thought about doing it over again. You know, when you're going through and you're so much a part of it. There are so many people involved and you're a part of it. And you contribute to it. Now I don't know of anyplace where I had a major problem with something that was being done. If there was I think that it would have been ironed out, you know.

I do remember a couple of young student landscape architects. They were given an assignment at Mabry Mill to... I forget exactly what it was. They were to do a drawing for an expansion of the little water storage reservoir that fed the mill wheel, see. Well, This one boy, seems to me he was from Syracuse,. But he didn't think that ought to be done. He didn't think that ought to be expanded. It wasn't that it was a major impact of any kind. For some reason, if I knew what it was I would give him credit for it. But I don't remember what his reasoning was. But that wasn't the point. The point was he was a student landscape architect and it was his job to do what he was told to do, see. Draw this little expanded reservoir . Well he went on and he went on and that day passed and the next day and he finally said he wasn't gonna do it. He wasn't gonna do it.

So I went to Bentley was the chief of maintenance for the parkway and it was his money that was paying for these guys, you see. and I said "Well, I don't know what to do. He refuses to do it. " And he said "Well, the only thing I know to do is we'll have to let him go." So we said, "Well, okay, and I'll bring him in and we'll talk to him."

So we brought him in his office. And he sat down and we decided , "Well, if you're not working on this project by 3 o'clock this afternoon you might as well pack your bag and go home." (laughs) Because, you know it was not the purpose of him to determine his projects, you see. And I don't know where he was coming from. Maybe he thought the landscape architect was God Almighty. He had the right to determine what he worked on and what he didn't. But that's never been the case. You could speak your mind and you got reasonable people you may change your mind. But when the decision is made you go on and do it. So by three o'clock he was working on it. (laughs)

I guess that's a good ending to the story.

The National Park Service has changed and become more biologically or ecologically focused (during), lets say the past forty years, certainly. Has that impacted any decisions related to the parkway that you can think of, or would it impact design decisions that were made in the past? Do you think that some things might have been different now?

Well, possibly so. I can imagine there would certainly have been a lot more discussion, a lot more involvement in anything you would do now compared to what it was then. It was rather simplified. But it was still a good dialogue that was done. And nobody went off in left field and did a lot of things that shouldn't be done.

Are you aware that Bob Marshall made a visit in 1934 to the parkway?

Bob Marshall?

Robert Marshall, he was a wilderness advocate.

Oh, In 1934. No I wasn't.

I guess the Secretary of the Interior asked him to go up and take a look at the location.

Oh. What did he say?

He wasn't in agreement in terms of the location. He was concerned about the Appalachian Trail, the proximity and what he felt was the destruction of the wilderness values. It was close to Great Smokies National Park and he was very concerned about the access road into Great Smokies National Park. He didn't base his criticism on ecological values per se but more on what he called 'saving the primitive'. Maybe some of the things you ran up against in 1980's with the

extension to Atlanta would follow suit with some of the concerns he had about saving a beautiful, natural zone.

Back in those days I was intimately involved in the Georgia Extension. We had public hearings, public meetings. And there was opposition to it. I guess at the time I was all for the extension because I appreciated what parkways were and what benefit they would be to people. Looking back now I 'm kinda glad it was never built, the extension to Georgia. There were some real nice primitive areas that would have had better access from the parkway. And you have to weigh that access against the public enjoyment. I don't know what the land is like now, see. I don't know what it is. But In these public meetings, there was opposition expressed, concern about developing a parkway down through ...this would have been back on the Blue Ridge. It would have gotten back on the Blue Ridge through, down through Mt. Oglethorpe and dropped off the mountain there toward Atlanta.

But there were a number of people who came out, and I mean they were very open minded. One of them was Bill Bake. Do you know Bill Bake? There he is underneath Harley, (shows photo). We had several meetings.

There was this one coalition of Georgia conservationists. And we decided to meet them at Neal's Gap on a Saturday morning. Most of them were Appalachian Trail people. And the parkway would have extended through Neal's Gap. And there's a little stone wayside inn there right in the gap. The gap is very restricted. We met there in a little kind of a little lunch room. The only lunch you had was snacks from a vending machine for the Appalachian Trail people. . And we met them there at nine o'clock in the morning. Bill Bake had arranged it. And still at three o'clock in the afternoon we were still there. You know, the vending machines had gone dry. And we just had a great time. I mean it was just real nice. Bill Bake, he lived in Georgia then. Then he relocated to Appalachian State, in Boone. And he's been there ever since, I guess.

But when we started the construction around Grandfather Mountain, the first project around Grandfather Mountain. We had agreed on the right of way and the line. . It had been on the burner for years and years. So it was not a new thing. But, I don't know whether somebody suggested it, or... I know Gary Johnson was involved in it and he may have...no maybe he and I both. Somebody wanted us to meet with Bill Bake. Bill Bake wanted to meet and look at the line. That's the way it was. He wanted to meet and look at the line.

So I guess Gary and I went out and met with him. We took him around and showed him around the whole Grandfather Mountain Section and showed him up where it was gonna go and all. He wasn't real happy with it but finally he decided this thing has gone on so long, that it was not something the Sierra Club...he represented the sierra Club, it was not something that they wanted to take on and obstruct. But he collaborated with Harley on that. He's a great photographer, you know. Done a lot of great photography. But I remember meeting him at Neal's Gap. This would have been '73 or '74, sometime way back then.

Do you know what happened to Van Gelder? Would he still be around?

I don't think so. I haven't heard anything about him in many years.

Did you know him?

I had never met him.

Okay, so he wasn't involved. I guess he came in around the same time as Ed Abbuehl but didn't stay on as long.

Yeah, Ed Abbuehl came in 1934. Stan Abbott in the Christmas of '33. And Stan Abbott had worked for Gilmore Clarke. You know all that story there. And Ed Abbuehl was an instructor of Stan Abbott at Syracuse, or not Syracuse, Cornell.

One last question: What is your reaction to the way the parkway is being maintained? How do you think it ought to be maintained in the coming century? What do you think the policy should be of the National Park Service as relates to the Blue Ridge Parkway?

Well, I don't know that it can be managed much differently than it is now. There's always choices to be made on a certain field, whether... If its an agricultural parkway, you're gonna have some agricultural activities to keep it that way. You are going to have to mow some fields, and going to have to pasture some animals.

And that is a worthy objective, in my view, to keep the rural landscape . And even an agricultural landscape, that's a worthy objective because someday...But as the economy changes and people change you don't find farmers anymore. They go to the grocery store, you see, they don't raise... There may have to be some unique way of doing that. You may have to pay somebody to pasture cattle there. Maybe the Park Service will have to get into the farming business. You know, whatever is determined to be in the best interest of the scenic beauty and the interest of the parkway.

I hate to see government getting involved in a lot of things like that. But maybe there's other ways of doing it that individuals can do it rather than the government. I think it would be a sad day when the government got into maintaining pasture land along the parkway. You know, they wouldn't maintain it for the best interest of the pasture but for the ease and economy of doing it.

But you know, trees change. Vegetation changes. You're always going to be manipulating vegetation.

I think a major problem now is keeping the vistas open where you have vegetation that is growing up and blocking a vista. There are some overlooks where the vegetation blocks the view, see. Well, if the overlook is going to serve its purpose you are going to have to do some clearing down there. A lot of the time, all it is is Tree of Heaven that sprouted up there. Well, that needs to go. I don't know of any way to do it except (with) hand labor.

Hand labor is not productive any more. You'll see somebody wanting to do a little utility line that long. And they'll bring in a back hoe and dump trucks and all that and they'll make two sweeps with a back hoe and that's it. You can't dig it out by hand, see. Oh, I don't know... I guess there's a lot of changes like that that we can expect.

But if you still keep your sights on the overall objectives of scenic beauty, charm and interest of the countryside, some fences, you know a variety of those for display. It may be that instead of pasture we just have to mow the fields. Hire it done, or something. But it would be nice to see some animals. It's nice to see some crops, row crops, corn fields, cabbage fields. It's a live environment, ever changing.

Well, I guess that about wraps it up unless there is something that you would like to ask me or anything I haven't asked you that you would like to talk about.

Well, there's so many things that it takes. You're gonna have a problem. You're gonna have to boil something down into something that's manageable and understandable and has some focus to it.

One of the questions I have, we know that there was regard for native vegetation, native flora, was there concern about native animal habitat, watershed issues that you're aware of when you were working on the Blue Ridge Parkway?

Well, I know there was some ponds on the parkway. One, Rakes Mill Pond. You know the beaver story there? You know, beaver migrate. You know they may show up any time and take up a homestead. Well, one showed up at Rakes Mill Pond one time, right up in the flats above it, started to build a dam, you know. There was a discussion, I wasn't involved in it, there was a discussion in the ranger ranks, about what to do about those beaver. Whether to let them go or whether to relocate them or what. And time went along and we got word that there was no beaver problem anymore at Rakes Mill Pond. (laughs) Why, the ranger shot the thing you see. He just shot him and got it out of the way.

And you know Peaks of Otter, the lake there was a major discussion for many years; and it was controversial. It was the landscape architects that thought that that swamp ought to be made a lake to enhance the enjoyment of the lodge and restaurant. It was a legitimate argument. That the lodge and restaurant were supposed to be there because Mons Hotel had been there as a historic site. It had burned down. So there was an effort on the part of the Park Service to develop accommodations at certain intervals along the parkway. Peaks of Otter was one of them and the lake was one. Well, we'd never be able to build that lake today because of the Peaks of Otter salamander, you know, an endangered species. And he has a habitat there, as well as, a couple of other places north of there.

Wasn't there also an elk herd there originally?

Well, there was a transplanted elk herd there that was brought in in the 1930's and located there. So it was not... I suppose elk, at one point back in history, was native to the whole eastern part of the country here. But it hadn't been there for many, many years. But it was a small herd brought in, something like 35 animals, and dumped there at Peaks of Otter. And they survived there through the years, up until, I suppose, into the seventies.

I remember seeing many of them there. You could be up around Flat Top, Harkening Hill, round there and have one of those elk jump up and just scare you to death. It would snort and run off. And we had some trees planted in the median down on the parkway there. And they would come down in whatever their season was and rub the fuzz off their antlers and just rip the plants all to pieces.

But the herd built up and they finally one time they had a hunting season on the elk, mainly because the orchards down in the lower lands from the Peaks complained about the elk destroying their crops. But that was only one year. And then the herd kind of started dwindling down and it started getting sick. You know, the inbreeding and the disease got into them. And finally the chief ranger said, "This is just no good, we're not going to put them back." So he took it upon himself and some others and they just dispatched the elk. Cause they were sick. He went up there one time and there was one

just along the road that comes down, 43 and it was just so sick it couldn't even walk. And that convinced him that the elk should go.

When was that?

I would say, that was probably, well, before 1970. One time, the National Park Advisory Board... soon after they built that lodge there, The National Park Advisory Board met there. And I think Mrs. Johnson was on it and Grosvenor of the National Geographic was on it.

Do you mean Lady Bird Johnson?

Yeah. And the guy from Arizona, Udall, was there. I mean there was some people there. It was just an overnight stop on this main tour they were going through there. And about five o'clock, just before daybreak, in the morning, a couple of bull elk got in a fight right out in front of the lodge, in that little field above there. I mean, they were snorting and bellowing. And you could hear the noise and the antlers and all. I mean they were really going at it.

And at breakfast that morning that was the main topic of conversation. And these people all accused the superintendent of staging that thing for their benefit. (laughs) That was just the highlight of their visit.

Do you think it was the National Park Service that brought them in?

No, I don't think the Park Service brought them in. I don't even think it was even Park Service land then. That land, some of it was private, some was Forest Service. No, I don't think the Park Service had anything to do with bringing them in.

There was also at the same time another herd brought into Mountain Lake over in Giles County. You know that's high mountain lake area. There was another herd brought in there. I think it has died out now, too. There was two herds in Virginia. They were both unsuccessful. Mainly because of the inbreeding. You know, elk migrate, scatter around. But it was too tight there. They couldn't get out and roam around like they need to. Now there's a lot of bear up there, a lot of bear at the Peaks. But bear somehow can maneuver around..

You were asking about design that would take into consideration wildlife. Now on the Roanoke River Parkway we did do that, you see. I don't have a plan but you see this river parkway parallels the Roanoke River down to Explorer Park.

About a mile and a half. I don't know whether you're aware of it, but wildlife, every night, migrate to the river, every night. The wildlife migrate to the river. And here we were building a road in there blocking it, you see.

I don't know if any body else is aware of it or not, but I insisted on two, we called them, pedestrian underpasses. I didn't say wild life, two pedestrian underpasses. These are like two 12 foot square boxes with stone face on each side. Beautiful things. But they were intended to facilitate a hiking trail system which has not been developed yet, you see. Maybe someday somebody will do it. But they will accommodate horses and people and bikes and whatever the plan calls for. But there's two of those and there's another big bridge across the ravine there and then there's another bridge down there where a service road goes back into the land fill, where the land fill used to be. And that's an over adequate bridge. But in a mile and half you've got several opportunities for wildlife to get across and down to the river. And they use it. They are using it. Every little drain pipe

is used by wildlife. Groundhogs and possum and raccoons. There's trails, little animal trails that go down and through those pipes.

Do you think the same is true on the parkway?

You mean on the old parkway? Well, yes there are a lot of culverts, some beautiful stone culverts along the parkway that you just never see. But they're there and some day somebody may take that on for a study.

Where should I look for some of those beautiful stone culverts? Are there any in the Roanoke vicinity?

Well, there are some cattle underpasses just right straight across here, right over here. You get on 460 and start south and within about a mile or so there's a couple of them there. Now those are cattle underpasses. They are not very scenic because the land goes down into them very steep. You hardly know they are there. If they were more visible there would be more attention given to the grade in and out of them.

Now there's one. My favorite one is down, and I don't know how to tell you where it is. (laughs) I used to have that in my mind. Well, let's see, I've got a map someplace here. Let's try this map. Now this is a culvert that goes, just accommodates a small stream going under the parkway. But where it comes out on the one side, on the right hand side going south. The wing wall of the box comes around and its got a curve to it and it comes around and goes and back across the stream and the water trickles over this. And it's a beautiful thing, a beautiful thing.

Now, let's see, where in the world...(looks) Well, it's... I've just lost all orientation to the parkway. I used to know all those things. It's in Virginia, this side of Rakes Mill Pond. I'd say its somewhere in the Smart View Area. I don't have any maps.

I have some drawings outside. I mentioned, it's a planting plan, Its about ten miles of Smart View. We could look and see if that area is on there.

It's not right at a road crossing but it's a stream comes out of the... Well there's a house on the right hand side. Now the water, I can't remember which way the water's running. I think the water is coming from the right. And that is the way you would expect it to come from.

As you are headed south?

So the water would trickle over this and into this little basin and then go through the pipe. Oh, it's a tremendous detail.

**In a later telephone conversation in February 2001, Mr. Hope mentioned that he had travelled south on the BRP looking for the culvert and located it near MP 156.*

And that's an early section of parkway. Let me go get the drawings so we can look at them. (tape pauses)

David Hill, he lives in Roanoke. He's a landscape architect in private practice. I guess his office is still on Campbell Avenue. Now, he was a student of mine on the parkway. He graduated from Virginia Tech. Went on to Harvard and got a Masters at Harvard. Practiced some in New Orleans and he came back and he's in private practice.

One of his projects when he was at Harvard was to develop an exhibit on the Blue Ridge Parkway, the building of the Blue Ridge Parkway . And he did it and he won first prize and he got a trip to Europe and his masters out of it. And this exhibit was featured at the National Building Museum in Washington DC. They had an opening there and my wife went up to it. And after it was there, Well it ran for quite a while in Boston at the Massachusetts Department of Transportation, or something . They wanted it and featured it for a while. Then after it finished at the National Building Museum it was brought back to Roanoke and was redone. A firm in Lynchburg, I think, made it into a travelling exhibit. So different parts can be disassembled and put up and travel around the country. This Getty Browning drawing, map I was telling you about was part of it at Harvard. But it never made it back you see. Something happened to it. It was shipped to the wrong place. Something has happened to it that it's been lost. And we don't know what happened to it.

But David Hill is someone you really ought to talk to.

I'd like to do that.

He's a great guy and this was a tremendous exhibit that he prepared. He did two years on the parkway in the summer time while he was a student at Tech. And he worked in Asheville one year and then he was on his own here in Virginia a second year, primarily revising land use maps. Oh, he just loved to do that. He'd take those things and go from daylight 'til dark marking up those things.

He is doing very well in private practice in Roanoke. . He's on every board and every committee that comes along.

Does the Park Service have these documents, like your list of northeastern plants and even your marked up copies would be archival.

You mean like this set?

Yes, for somebody like me it is so interesting to see what you were thinking about, what your perceptions were.

This is just a set of prints of the final thing. They probably have that with signatures on it, here, which would be the only... because I sent the originals down there... This is just kind of a preliminary print where somebody did some field work and marked on it.

But I think those are useful, too.

I don't know that I ever went back to see that those notes were incorporated in the final... I probably did. I mean why would I let somebody spend a whole lot of time on it and ignore it?

They would have been walking the parkway to do this?

Oh yes. In field checking land use maps, generally, we had a little clip board thing that was plywood with mouse traps on it. You would do a half a sheet at a time. You'd fold one of these in half. It just fit on the clipboard. You'd park your car here and walk down one side, mark it, and then come back the other side, get in your car and go down this point and get the other half of the sheet. Depending on what all you were involved in, you could do two sheets a day.

Okay. And these would be done after things have been built, for maintaining it or for actually the design of a certain section?

Oh no, these were done after it was built.

I think these would be very interesting.

You may go through that process two or three times before you finally got them finished. And if somebody else picked up to go on, they would do it over again.

They'd have to go out themselves and look at it? And their observations might be different?

Well, maybe somewhat. They would add to it probably. I don't know what they would change much but they would add to it.

Well, that's great. I'm going to leave now. You've been so generous with your time.

(end of tape)

**Interview with William O Hooper
7830 Pine Forest Road, D-9
Pensacola, Florida 32526
Telephone: 850-941-2014**

January 6th 2001

Interviewed by Mary Myers, Asst. Professor
Department of Landscape Architecture
College of Design
North Carolina State University
Raleigh, NC

Background of William O. Hooper provided by a questionnaire he submitted to Mary Myers, with letter dated Nov. 9, 2000.

Mr. William Oswald Hooper was born March 3, 1911. He received a Bachelor of Science degree from Appalachian State University, Boone, North Carolina in 1932. He received a Certificate in Real Estate Law from the University of Virginia, (no date provided).

Mr. Hooper worked on the Blue Ridge Parkway from 1945 until 1975. He worked first as a Land Management Specialist, involved with parkway lands aggregating approximately 3,200 acres and 360 parcels. These were leased to adjoining land owners for agricultural purposes to maintain the open vistas. As a realty specialist, he was in charge of land acquisition and easements.

(Below is transcribed from audio-tape. The first question asked by Mary Myers was obscured.)

Mr. Hooper, (referring to the parkway fences): Well now, to locate those things. The engineers, of course, would like to have it just a certain distance set back so they could mow it. But you know what that would look like. So always, if I was to locate those fences...If it was a cut slope here, (It had) to be below the eye line. And if it was a cut slope above, I mean if it had to be above the road, (it was best) to put it below the ridge line. That way your fence fits into the landscape so that it doesn't give a bad picture. I mean, as far as I'm concerned, it's attractive like it should be. That's the most important thing about locating fences. And as I said, there's a lot of fence. Some of it is wire. But most of it, in the old days, we tried to get as much rail fence as possible. We had to dip those rails in a preservative. I suppose they'll last a long time. I don't know.

I'm glad you're mentioning this because when you answered my questionnaire, in your letter you mentioned the fences as being very important to the scenery. And I had that question, how exactly, you managed to do that (with the location).

Well, it's not too hard to do, if you think about it and drive along and before you ever locate your fence, just see how its going to fit right in to that (landscape). It's very easy then I think. But as I said that wasn't always popular with the engineers. But there's one thing I didn't ever mention about the parkway. You didn't ask any questions about it.

To me it was impressive what the landscape architects did. And it's not everywhere that you can see it on the parkway. I call it the canopy view.

At the Peaks of Otter, for instance, you have these old white pine forests and by opening, cutting out some of the under story, you exposed those great trees and you could look on through and get a view with that overhang of the tree tops which made it. To me it's one of the most beautiful things we had. But that's why, as I said, you need a landscape architect. Landscape architects planned that plan. That's why it's as attractive as it is.

As you know, there is an average of about 800 to 1000 feet right of way there, owned in fee simple. The federal government did not buy that right of way. The state of North Carolina, the state of Virginia bought the right of way and conveyed it to the United States. And that gave us some of the problems that caused me to end up as a realty specialist because they had easements for private crossings, maybe a road ten feet wide. Or it might be a cattle lane crossing, ten feet wide. Or it might be for over head power lines or anything like that. But the trouble with it is when you had a ten-foot private road crossing the parkway to get a farm on one side of the road reaching the residue on the other side of the parkway.

Sometimes some person would see some advantage maybe, and attempt to put in some commercial thing. It wouldn't be right on the parkway but t'would be maybe in sight if it was in open land. When they did that, actually a ten-foot road wasn't quite adequate.

Several of them, including a man named Ulaja (sp.?)...I won't name them all but that was typical, would build a restaurant there. It happened at Ground Hog Mountain in Virginia, the same way. And they wanted to pave it and they wanted to pave it wider. Well, we couldn't allow that ever to happen. But we always had to go to court over it or something like that. That's where I came in because I knew the law on it.

But it did happen. They would build them sometimes. Somebody would build a business, something like that. It never worked. They never made money. They always failed. Usually we would make some kind of exchange of land.

Now that's another thing we did. Sometimes we would buy out that property to eliminate that crossing. Sometimes we would make an exchange which apparently doesn't happen any more because it's a very, very complicated legal procedure to trade land. And there is one thing too; there is no provision in law for any parkway land to be sold. There is no way to sell it. You can exchange it or you can buy it.

Then we had those huge tracts of land donated, like Cone Park, Price Park over at Blowing Rock. Now there is a reverter clause in that the Cone land, if any of it is traded off or sold or traded off, the whole property goes back to the Cones. So all those things are what you get into as a realty specialist.

May I interrupt for a minute? (Pause) I am back with Mr. William Hopper agronomist and realty specialist for the Blue Ridge Parkway. We were just talking about some of the complicated land legal issues that he had to deal with. But Bill, I'm going to go back a little bit further than that. I have been doing some work in the parkway archives and I came across some and memos and letters that you wrote related to soil conservation, seed mixes, stabilizing slope, etc. I wondered if we might get into that a little bit. When you started on the parkway...tell me a little bit about your educational background.

I am a graduate of Appalachian State University. Then I did some work in agronomy at NC State University with a man named Dr. Cummings. I don't guess you've ever heard

of him. Then with the Soil Conservation Service I finally was able to pass the Civil Service as a junior agronomist. I was moved to Sparta, North Carolina of all places.

That is where Mr. Weems, who was acting superintendent of the Blue Ridge Parkway, found me and offered me this job on the Blue Ridge Parkway. And I think until this day I think that he probably should have kept on his pay roll, well, an agronomist. Because we had, along the road, according to the plans...and those plans were drawn up by the landscape architects, that this was to be agricultural land.

We liked to blend that land on the parkway as much as we could, with the land adjoining so that there is no apparent property line there and it all blends together. But now, you might be surprised at how much (there was). When it all (added up) those little old parcels here and there, sometime large parcels. . We had over three thousand acres at one time under special easement used by adjacent farmers.

Another thing we did, we had them use parkway land, requiring them to do certain things, contour farming, for instance if it were cultivated. Or if it were in grass or whatever, the use of lime fertilizer and those kind of things to... well, it improved the soil but it also gave them a yield that those mountain farmers were not accustomed to. At the time I was there in 1945 they knew very little about that kind of thing. So we tried to work with the adjoining farmers to get their property improved, and (to) teach them, too. That was all part of it.

But one of the more important things, at that time, 1945, highways in North Carolina, Virginia, any place else that I know of, were usually left with raw slopes. As far as I know, the Blue Ridge Parkway was the first parkway, certainly in this part of the world, the south, this was the first place we ended up without scars.

Even the parkway itself when I came there was scarred. You weren't to cover those slopes up. Because when they cut down there in those raw soils they didn't know that grass would hold. But by putting, as I said, the right type of grass and the lime fertilizer, it was easy, fairly easy to stabilize those things. And I think we covered a lot of depth.

The other thing was that along the motor road was a shoulder, or shoulders. At that time they were using things like Lespidiza and Orchard Grass and some of those very flammable grasses. Well, we changed all that. And the superintendent was real glad to do it. So that from then on and even on the old, already constructed road way, we put in the grasses that were rather difficult...you could throw a cigarette out and not end up with a fire. And it made a lot of difference

What types of grasses did you use?

We used certain fescues mostly because they would stay green in winter. Right now I don't remember which ones were used where or anything like that. It's been too long ago. Another thing about it, it made mowing easier. Because if you used tall grasses on your road shoulders it took more mowing. But all those are just things that maybe seem to amount to nothing. But as I said, at that time, I don't know of another roadway anywhere in the country that covered the slopes and graded them so that you could drive through without ever noticing any scarring.

How did you try to check erosion?

Well, actually we had a lot of erosion on parkway lands because it was old farmland that the parkway traveled through. In 1916, (they had) in western North Carolina and on into Virginia, they called it the '16 Flood... I know nothing about it but it cut huge gullies in a lot of places. And it stripped the topsoil on these slopes because some of those mountain people were putting corn on rather steep slopes, or other row crops. Well, so it was when they had that much rainfall, it left bare slopes, gullied slopes.

And I don't know how many acres we had of that but there was a lot of it. We had a program called Soil and Moisture Conservation. And we had certain funds for that. And a lot of it was if we were going to put it back to woodland we just simply planted trees on it. 'Cause that was cheap. If we were going to keep it open for pasture land we would go in and prepare a seed bed, put the right grass mix we wanted on it, put lime fertilizer. When we got it stabilized, we might actually end up with it being pasture.

Now we tried to control pasturing. We would only permit a certain number of units of cattle per acre. That would vary by judgment. I had to use my own judgement. This pasture would need three acres; another might need two acres, depending on the type of soil and other conditions. All that, as I said, was a matter of judgement. We soon became, I don't know, aware of these people who were using parkway land by permit or lease or whatever you want to call it, so that by just working with them we didn't have any real serious problems.

So it sounds like you were trying to check the erosion by solving the problem at the source, with the farms. Did you say that it was three thousand acres of farmland?

Yes, a total of three thousand acres that were, well I just call it leasing for a convenient term out to adjoining landowners.

Would this be in North Carolina or Virginia?

Oh, that's what I meant. As far as...well, the Parkway actually begins up at Rockfish Gap in Virginia and goes to the Smokies. Certain areas you are going through forestland then we would go into an area of somewhat plateau land where farming prevailed. Then we would try to keep some of those areas open. That's what made the parkway interesting. If it were to all grow in with woods all over...

But the landscape architects, I give them all the credit. They knew exactly what they wanted and they knew what would be a good view and what wasn't a good view. All I had to do was take their plans. From one end of the parkway to the other there is land use plan. That land use plan goes to the ranger in the field, the maintenance man in the field so that they can use that if they want to know anything about it...But unfortunately now, unfortunately, sometimes those rangers, sometimes those maintenance people, don't use those plans like they should.

I guess that can happen.

That did happen. It does happen. I've seen it even before I left.

In any specific areas that you recall? Were there problems where it wasn't being used?

Well yeah, I won't name (names). But it's everywhere to some extent. If you were to look on a land use plan, it would say agricultural use or something like that and it may all

be grown up in woods by now. Because, here again, to get those areas under lease, you don't just sit there and wait for someone to come and say, 'I want to lease that land.' You got to get out and find somebody to do it right. And the darn rangers...excuse me.

Was that partly your task to try to coordinate those efforts? To find the people to lease the land?

I did. I went to them personally. I hunted 'em all the way. I was the most traveled man that ever was on the parkway.

How did you find the people?

No specific way. I'd hear about them. I'd ask about them. I'd go hunt them up and talk to them, something like that. And a lot of times they were right there close by, not much else to do. Some of it came real easy.

But sometimes, I'd go... Well, we had in that Bluffs area where there is a huge pasture right there behind the lodge. I went to Judge, um, that federal judge, good golly, I can't think of his name. Hays. And he said... well, I was in an association with him. I liked him a lot. And we became pretty good friends.

And I asked him (about potential lessees).

And he said, "Now, my son Hadley, I shouldn't tell you about him, but he *is* in the cattle business and he will do what you tell him to."

So sure enough, I went and talked to Hadley.

And Hadley said, "Oh, I need some pasture land up there."

And it's a huge area. It's over a hundred acres right there behind the lodge.

Can I tell you something sort of funny about it?

The judge then came up one day because they were supposed to bring some lime and spread it on that land. Hadley, the son, couldn't come so the judge put on his overalls and came up. When I got there the doggone truck had run off into the grass which was real wet and soggy and the biggest mess you ever saw. And (the truck) kept pushing around. And he had torn up a lot of grass.

I said "Oh Lord, Judge, you're gonna have to fix this"

He said, "I will."

I said, "You know that guy...(the truck driver)!!"

He said, "Now listen, Bill. If he was as smart as you or me, he wouldn't make such a mess. He is a truck driver because he is a truck driver. "

I said "Well, all right."

Well, I went out there and talked to the truck driver.

I said, " Now look, you are lucky. The judge knows that you made all this mess and so on. But he isn't going to give you any trouble over it."

He said, "I tell you, what about that judge?! You get him out here on the ground like this with them old overalls on and he's just a hell of a nice fella. But you get him in that courtroom and he's a son of a bitch." (laughs)

(Laughs) Maybe that's one of the reasons we need the parkway so people can get outside and get more down to earth. That's a great story. I have been doing more specific research on the Smart View, Virginia area. Are you familiar with that?

I know Smart View fairly well. I guess, it's still in the front as you go into it...Is the pasture there with the rail fence? All right, that's the way it used to be. I haven't been there in a long time. All right. That's it. Now it was used for pasture. And of course its picnic ground.

Yes, its picnic and (I think) some camping.

And some camping. That's right. That's the way I remember it. Now let's see there's a residence there. I don't know whether it is still there or not. We were trying to preserve it. But I expect it's gone.

Near the picnic?

Yes, right on the edge of it. It was right beside the road going into the picnic ground. Well, if you didn't see it...so it's probably gone. It was very old and that's about all I know about it.

And then as you go up that Smart View section, there are some farms and valleys and crests and some nice underpasses where the streams go under the parkway.

True, yeah, that's right, some nice little streams. We bought some extra land down there, I wish I could remember the name of it. Coming south, the parkway right of way is very narrow. I remember that. We had, when I left there at least, we had the open land leased. And then we bought another farmhouse on the left coming south. And I suspect that's been torn down because there was a crossing there that was trouble. I can't remember a whole lot of more detail about it. I remember too, there was some plant in there. Well, it wouldn't matter (but) it was unusual. I can't think of whatever it was. This old memory is getting pretty bad.

I'll have to look it up and see if I can find it in some of the old documents about that area. I know that Malcolm Bird made some drawings for that.

Malcolm Bird, Malcolm Bird...very unusual man. He knew plant life on the parkway like no other person I ever knew. You could bring in any plant you wanted to and Malcolm could tell you what it was.

But he always had the headache. (laughs)

Too much up there. (Laughs) In some of the memos that you wrote... in fact I'm going to pull one out right now, Bill and show it to you. These are just xeroxes but this is actually a picture of you in this, along the parkway. Yes this is it. This is a memo dated August 9th 1948 and it's to the regional engineer. At that time would it have been Mr. Spellman?

I suppose so.

And it is from the soil conservationist. And that was Mr. perhaps, Mr. Taylor? I see the name Mr. O.B. Taylor.

Yes, right, right.

By the way did he come from the Smokies region as well, Smokies Park?

No, no. O.B. Taylor was from Kentucky. Bowling Green. Served in World War One, was injured, was treated at Oteen. Went to NC State and I don't know what he taught. But he taught. He had a master's degree. He didn't have a doctorate but he taught something at NC State for several years. And a student who lived with him at the time because he didn't have much money was a guy named James Hunt, Jim Hunt, Governor Hunt's daddy.

It's a small world isn't it? Well, in this memo it shows you examining a stabilization along section I-7 and it shows some other pictures here and it looks like you were very busy doing work along the perimeter of the parkway.

That's right. That's what it was. In order to stabilize... Sometimes along the parkway, the erosion extended on into private land. It came from private land onto the parkway. So we had to help them with theirs. That's probably what that was, its what it looks like. (looks) Yeah, we had an awful lot of that to do when I first... Well to now, you just cant imagine what it would look like. The parkway doesn't look like it did then. Oh yes, (looks at photo), that's the kind of thing.

This shows very bad erosion in this photograph number one of this memo and you re studying an old erosion on 2J which would have been in North Carolina with walls of gullies broken down and partially checked by some pioneer growth. How would you go about trying to mend that erosion?

Most of it we would put something in there to make a seedbed. I don't remember what kind of machine we had. One time we used e had a bull dozer That was the best thing just take a bulldozer smooth it up, seed it, mulch it, and it would..

What would you mulch with?

Most anything we could find but usually we used grass or sometimes we would mow...We had some fields we kept in reserve just to mow the grass to use for mulch. And sometimes we would get pine brush and use pine brush.. Almost anything we could find.

It would typically come from the parkway lands?

That's right.

(Rustles papers, looking.) I'm sorry . Here it is.

The worst erosion that we had was that area around Blowing Rock and on north to the Virginia line and into Virginia a little bit. Because that's farmland, as you know, over there.

It says in some of the memos that you were trying to get people to take on the hill culture methods of farming. Can you explain what hill culture is?

Well, I don't know, I think I worked with VPI or Virginia Tech or whatever you want to call it. They had done some work to get certain plants that mountain people could use to an advantage, whatever they might be. One of them was, they developed some kind of a chestnut but that wasn't very successful.. But then were things like blueberries and, oh, let me see what we got into one time? Goodness, I don't remember. But that's what it was.

Those kind of things that would grow in the Blue Ridge Mountain country and cover the ground like some berries, or....Well, it mostly had to be berries or some fruit or something that they could probably use.

It wasn't extensive though. Because those people were devoted to cattle. And actually we liked, at the time I went there, to have these great haystacks because we thought they were attractive. But then along come the machines. And (with) the machines, that is bailers and all that kind of thing, and it was hard to get anybody to put up a haystack.. Mr. Abbott, and I know you know who I'm talking about, had. I never knew a man like him.. If I had to pick the greatest landscape architect in the world I would probably say it was Stanley W. Abbott.

But he had a feeling for all these kind of things and he would tell me, "Now Bill, I want some haystacks. And I want some haystacks here"

Well, if you get out there and work at it you can get it, you can get people to do it. But it takes somebody to do that kind of thing. And if you leave it up to the rangers.... rangers are law enforcement officers. Now I'm not criticizing them a bit because they do a good job of it. But you can't expect them to do that because some of them never saw a haystack and wouldn't know what it was if they did. So that's the trouble. It's your staffing.

So it sounds as if you ended up being responsible for a lot of that scenery that we see.

That's right. But as I said, Stanley Abbott could do some of the most unusual things. He didn't ever carry any cigarettes but he liked to smoke one now and then. I used to carry one around in my pocket so he'd have one.. Often times you'd hand him cigarettes he'd take one out and put the (entire pack in his pocket)... and walk off that way. His mind was not on it at all.

But what a wonderful man he was. This Blue Ridge Parkway is really his vision. His. And Ed Abbuehl fitted in there with him. Because Ed Abbuehl was trained as an architect, I believe. I think 'twas at Oxford.

(Brief interruption when Mr. Hooper's daughter in law arrives.)

You remember Ted (Pease)? Ted asked to be remembered to you, and his wife Jesse. I saw them in November.

Yes. They sent me a card and told about you. And what they said about you was very nice.

That's sweet.

But they are lovely people.

Yes they are. And they said the same about you. They said, oh you must meet Mr. Hooper. He is such a fine gentleman.

Well, that's really nice of them to say. But Ted Pease is a very talented landscape architect. Out there in the field. And that's where they should be.

That's why I praise Sam Weems so much as a superintendent.

Because you need a landscape architect out there in the field all the time. For instance, one of the power companies was going to put in a power line to extend from here to there. And as long as its parkway that's gonna happen every now and then when you cross that power way. Well, you can put them where they show all over the place. If you're smart enough and so on, you get them located so that they are not offensive. Now I don't think that you ever notice them much driving the parkway but there are a lot of (power lines) crossing right overhead. But I don't think any of them are very offensive. Now you may have noticed something that I didn't. But Ted Pease did that kind of thing. Not only that but telephone lines, or might be anything like that, all the time.

Well, as I said, Ted was out there and he knew the parkway motor road and the adjoining lands and he knew the people and all this kind of thing. You need a... if I were superintendent, I'd have a landscape architect, just as Sam Weems did, one at least on the ground, I mean out in the field somewhere, in Virginia and North Carolina. And it makes a lot of difference. Those things that are happening now just... man.

What is your concern about the way things look now?

Well, see I haven't seen it in so many years that I hate to say too much about the way they look now because I don't really know. But I was disappointed the last time I was there. Several things I saw....

As I said, (the) mowing.

The lines that are being mowed. Now you may have seen some of these things, and you may know it. But on those slopes. When Ted Pease was there he would have them mow an extra one up there and make a curved mow line instead of that straight down here. I'm talking about that. And I saw a lot of that. And I suspect its getting worse instead of better. I don't know.

When were you there?

Oh, it's been at least fifteen years since I've seen anything except going up to Bluff Park about seven or eight years. I did drive up to Virginia though.

Another thing that bothered me. As I said, when I arranged for a row crop. We didn't have much of it on the parkway. I always staked out a contour line or two for the farmer to run a contour line to keep the cultivation to the contour. And I know I saw some farms in Virginia where that wasn't happening any more. The darn...it was long slope like that, right up and down the doggone slope with corn there. I mean it just made me sick.

I believe you're right. I believe I've seen that myself last fall when I drove the parkway. From what you're describing, it would be much more in keeping with the whole curving nature of the road to have the contour rows and the mowing.

And we had some fields if it was a fairly long slope like that, in cultivation, more than two or three hundred feet wide on a slope, I had what (is) called strip cropping. A width of row crop, then a grass strip, then a row crop. But you won't see it on the parkway now. It's easier to do it the other way. And it's something that has to work. But I don't expect the rangers to do it.

What was the purpose of the strip cropping?

The strip cropping, as I said, if you have some erosion, any erosion or water loss that you have on the plowed land will be caught in your grass strip and you don't lose any plant food or anything else. It's caught in there. But a long slope, the longer your slope is, as you know, the more erosive the water becomes along a long slope.

Was there a ratio of row to strip that you used?

I just used my own judgement more than anything else. On steeper land, you have a narrower strip to cultivate. If it's not so steep you can broaden your cultivated strip because of the slope. All those things go into it. I don't know. It's just something you know how to do is all.

How did you know how to do this though?

Well, I learned with Soil Conservation. I was with them twelve years.

With the Soil Conservation Service?

Yeah. That was in connection with the old Civilian Conservation. We had these CCC camps in North Carolina, Virginia, South Carolina, all over the south. And they were doing soil conservation work.

And by the way, the farms were, you sometimes had terraces. But anyway, you had to go out and work a farm plan with a farm owner. And then if they had to put in terraces with waterway strips

And all that kind of thing, that's what the CCC boys did.

I don't know, in North Carolina, there must have been at one time as many as fifteen CCC camps doing nothing but soil conservation. But somebody had to do the planning for them to work. And that's what I did.

That's fascinating. And so they would do work on private farmlands?

That's right. But the thing of it was, at that time, back in the thirties, that's when the soil conservation service came into existence. In the southern fields where agriculture was cotton, and corn and row crop and all that kind of thing, erosion was a two edged sword. One was, it stripped the land down to the subsoil so that you're losing subsoil.. And it's going into the streams and filling up all the lakes and everything else. So it was, as I said, soil conservation was a kind of two-edged problem. But anyway, that's where I had my experience with that kind of thing.

So you worked for twelve years with the Soil Conservation Service prior to coming to the parkway? Or were you with the parkway?

Well I was stationed in the little town of Sparta, in Allegheny County, (NC) and I was the county conservationist. And I knew the parkway fairly well.

In fact, I made one awful mistake without knowing it. A place called Mahogany Rock. You know on the parkway you have these overlooks? One of the most beautiful overlooks I ever knew of anywhere in North Carolina or anywhere else, was what they called Mahogany Rock. There was a great stone there and what they called a mahogany. It was not a mahogany tree at all, it was uh...now I'm lost. Anyway the parkway line was very close to the...there wasn't much width there. You could just get the parkway width

there on parkway land. And below that is private land. And that land was steep and quite erosive.

And I worked out a farm plan with that owner. And I knew what that land should have. It should be reforested. So I got white pine trees which I could get from TVA and furnished them to the man and showed him how to plant them.

Now two years later I was with the Blue Ridge Parkway and I drove in there and I looked. And I knew those little old pine trees were all living and were getting up about knee high and what you gonna do? It wasn't gonna be very long until there wasn't gonna be any view! So the first thing I did was go to the superintendent. And I could always get along with Same Weems by telling him the truth.

(Laughs) That's usually the best way, isn't it?

The best way. He said. I won't tell you what he said.

He said, "You've got to do something about this. I don't give a damn what you do but you do something about it."

"All right sir, Mr. Weems."

So I went to see this man, Elmer(sp.). And I liked him and he was a very nice fellow.

I said, "You have this land out here that you're using and there's what they call a scenic easement on it. "

Don't know whether you noticed that on the parkway or not. Sometimes they didn't buy it fee simple. They put what they call a scenic easement on it and nothing must be built on it or used any other way.

But I said "Now that scenic easement is trouble to you."

And he said, "Ye-up."

"You can't use it for anything. You can't develop it or you can't do anything with it."

He realized that.

I said, "Now if you'll trade it to the government, United States of America, about a couple of acres of land right in front of that parking overlook, I will work it in the deed so that that easement is removed from your land."

And we did it. And so we got that much land in fee simple right in front of the overlook.

Creative work, there. (Phone rings, tape stops)

It's all interesting, it's all good to get down on the transcript and on the tape here.

But as I said, I think the greatest thing about the Blue Ridge Parkway, and I still think, is that magnificent planning that Stan Abbott had, was to get something self contained, as he called it, and then develop it so that you don't end up with scars or anything.

You provide what I call a window to the countryside. If you didn't provide this window to the countryside...and if you just allowed it to grow up all over so that you screened it out... Now we have some wonderful forest land, and some of the forests and so on that you go through, they are forests and that's good. And I love the woodland and everything. But you wouldn't want it to be that way, monotonous, from one end to the other. That's the reason I say

I don't know how the man could have this great vision at that time. Because I don't know of any precedent (for it). Maybe you have heard of it and do. But I don't.

Where do you think he got this idea of farm? Did he ever talk about it?

No, not to me. And I knew him well. He was trained at Cornell in landscaping. That's all I know. And they must have had some...And, no, there was a little Westchester Parkway up there. And I think that had something to do with it.

Um hum. When he worked with Gilmore Clarke up in New York, yeah. But still, bringing that down here which was probably less developed and maybe the farms didn't look so hot. It sounds like it was your job to make it look like a more fertile and productive and beautiful scene.

Yeah, that's what it was. But anyway I said, all these things and staffing and so on to begin with, that was Stanley Abbott. And he picked Sam Weems for an assistant superintendent. Sam was working for some bank as I understand it. And it seems to me there was a Resettlement Administration, I don't know the name of it for sure. But anyway, the idea was that the government under Franklin Roosevelt had these various agencies.

And there were a lot of sub marginal farms. No way for them to make enough to actually live on. They subsisted somehow. The idea was to buy them out.

Then that great area I call Doughton Park, or Bluff Mountain, that's where Sam Weems came in and bought all that land. And it was some years later that we learned (he had) got the deeds. I don't know how it was. But Sam was good at that kind of thing. Cumberland Knob is another one and Rocky Knob. And I don't know about Smart View. But those large areas were areas that Sam Weems bought.

Mr. Abbott made him assistant superintendent then went into the service. Sam didn't (go into the service. So Sam became acting superintendent and then superintendent.

So he was superintendent when you were there?

Sam? Yes. Sam Weems was the man who employed me. Stanley Abbot was still in the army. Stanley came back and took the job as resident landscape architect which was the same pay grade. That allowed Sam to take over the job as superintendent.

(looks at document?)

Here they are. A whole bunch of those fellows on the parkway. That was before my time. I don't know what happened to them. They got into the armed services one way or the other. But nearly all of them were officers, except Stanley W. Abbott. He was a buck private. Came out a buck private.

The military wasn't for him?

The military wasn't for Stanley Abbott.

And he went from a very high position, directing other people. It must have been a difficult experience.

When do you think the soil conservation became such a strong focus for the parkway, and why?

I don't quite understand.

Well, it started out as a parkway.. (a) recreation, scenic route through the mountains and then when you go through the archives you notice more and more about soil conservation. When you came in it became more important. Why? And I guess, when did it come about this way?

Well, as I said, which is more that we needed a beautiful countryside. And as I said, the lands near the parkway, as I remember when I first came to the Blue Ridge Parkway...

You'd be surprised looking at it now you wouldn't know it but those people on those hillsides were trying to make a living with corn, potatoes and row crops which was just the worst use of land that they could possibly be engaged in. So what we tried to encourage all the time, and with the help of county agents and all, you don't do anything by yourself, get them more into the grassland farming, cattle and grassland.

It actually is more profitable to them because the yield of corn, as I remember it for instance, the average yield on those hillsides wasn't but about six or seven bushels to the acre. And they did it all by hand. Those people aren't dumb now. They just needed a little leadership here and there. In fact they are very intelligent people.

A lot of people think of those people in the Blue Ridge Mountains as being somewhat reticent and not at all congenial in any way. But good golly, once they know you they'll talk your head off. And nearly always, I don't know whether they'd admit it or not, but they'd always invite you to come in and stay for dinner and all this kind of thing. Very, very (friendly)—in fact they like to have company, especially somebody to talk to.

I remember one man who was a very religious kind of fellow but he made booze. That's the way he made his livin'. I drove into his house one day. I knew he was a community leader. You always have to, anywhere you want to have some influence with people, you always have to go to what I call the community leader. Cause if you can manage with them the other people see it and you get along very well.

I could see him as I drove toward this house on this little old private road, sitting on the porch holding something. Got up there and 'twas the bible. And he was reading it. And we talked for awhile. I introduced myself. I didn't exactly tell him I was a born mountaineer but I suggested to him that 'Oh I'm a native.' or tried to suggest to him that I was a native and all this kind of thing. 'Course, I talk like they do anyway.

He says, "You ever take anything for the toothache?"

I thought I knew what (he was talking about) and said, "Oh, yeah, yeah."

He said. "Come on."

And we walked out to the crib and he reached up in the crib, pushed back some corn and pulled out a half-gallon fruit jar of his booze. And 'twas right, filled right to the top. And he took the cap off and handed it to me. And I didn't know anything about it. 'Gosh', (I thought), 'I gotta to through this some way.'

So I tried to take a sip of it. And I don't know, I couldn't to do it. I just spewed it out. (laughs). And his little old boys were there, two of them.

He says, "Go up and get him some milk, honey. He's a fur-iner, (foreigner)."

(laughs) That's a classic story. That's quite a test. But were you born, or raised in North Carolina?

I was born, yes, over in North Carolina, just south of Danville, Virginia. You know Danville is right on the line. And we were just over in North Carolina.

I see. That's great.

My mother was from that area, from up there around Gretna, (sp.?) which is near Chatham (sp.?) I don't know. Anyway that's the part.

Okay, there were some items, these may be too specific for you. Anyway these were in one of the reports written in 1952. And there was mention made of berm and flume construction for erosion control. Could you describe that?

Of course, in building the motor road now, they had culverts. The best I understand those engineers, we called it Public Roads Administration at the time, I don't know what it is now. But anyway they were fine engineers. But they didn't pay too much attention to the location of those doggone culverts. They just made it according to the distance, or something like that that the water had to travel in a ditch, more than anything else. But where they emptied into, they paid no attention to it. As a result, it often cut a gully down there in just a few years. Then we had to do something about that.

And another thing about it, sometimes that gully would extend into private lands. And we (thought), "Oh somebody's gonna take us to court...all this kind of problem." So what to do?

Now the engineers that we had, always thought of something, a flume or some type of ditch made of concrete to carry it somewhere. But there again you still gotta empty it. And with the Soil Conservation Service, I had seen a whole lot of that on private farms that the engineers did with Soil Conservation. The trouble with them is, sometimes water gets under them and will break them. Or water will get, I don't know, just different things happen to them, or somebody runs over them.

So I have always been, and still am, if I had to do it over again, in favor of vegetation. And I think that's what we ended up with nearly all the time.

So we would work with the engineer and divert that water to some extent to a better place. And then get some vegetation on it. Sometimes with grasses but sometimes we would use, oh, something like Vinca minor, which is, you know what 'tis, something like that to cover it. That's the best thing. We may have used...No, we didn't use. I started to say Kudzu. Couldn't use Kudzu on it because Kudzu would climb the trees. Soil Conservation Service did some of that though and you can see it all over North Carolina now, on some of the roads and some of the other places, just cover(ing) up the trees.

There is some on the parkway. And it's a problem. It has invaded. I know it was never planted there.

Um hum. No, we didn't have any Kudzu on parkway land itself. We never planted any. I don't think there's any on parkway slopes. Kudzu I'm talking about. Now we did use some of the vines. I don't know remember what we used sometimes. We sometimes used shrubbery and low growing plants, something like that but Kudzu was something...We had some on the parkway that had been there before the parkway was built. But we tried to get rid of it. I don't know whether we ever got rid of it all or not. But anyway, it was out.

You mentioned that the culverts were sometimes causing some damage when they flooded onto other properties. So your favored practice was to try to plant things to stabilize.

Yes, yes, try to cover up with planting. Because plants will shift a little bit and keep growing. I haven't seen any of it fail if you use the right kind of a plant, or whatnot. But I have seen the others, the rigid type of structures. I don't like structures much. In fact I remember one area we had, must have been thirty or forty acres, nothing but the gullies, the whole thing. It was parkway land. Now when I came there I noticed, they were, with some kind of labor, I don't know what kind of labor it was, might have been CCC or what, but they had gone into those gullies and made little dams. And after another interval put in another dam of some kind. Usually, as I recall, they were using little log dams and then filling in behind them. But you could go on and on because as I said, there were acres and acres of that. And I don't know how many years, or how many months, or how much time they had spent on it. But they didn't have it under control at all. The erosion was still there. It was gonna take time.

I ended up doing, well, going to the TVA and getting, I don't know how many thousand of pine trees and just planted 'em over there. And they lived and covered it up. Doesn't cost much.

But as I said, vegetation in my mind is the best thing. Because after you put those little old dams in there you still didn't have anything under control and eventually they'd break out or something like that.

You mentioned that there was potential for lawsuits by some of the adjacent properties. Did they ever actually sue over anything?

I don't think we ever got into court over it. But we had one or two. Superintendent had to satisfy them and I don't know where the money came from. (We might) even go on their land and repair something.

One place I remember was in Virginia, new construction from the City of Roanoke to the top of the mountain. And that happened. I don't know much about the details of it because I was not involved. But I know a lot of money was spent repairing the damage on private land.

They mentioned something called roadside pooling, pooling which may have been problems with just drainage pooling at the edges of the roads? I can check back through some of these things. It came from one of the memos...Now one of these memos is co signed by you and by parkway engineer Cozzani. Can you tell me a little bit about him?

Cozzani was a Mississippi State engineer who was working for one of the railroads in Chicago when the depression came and he lost his job. And I don't know how it came about but he came to the Blue Ridge Parkway on the superintendent's staff.

'Course, he had nothing to do with the construction of the Blue Ridge Parkway motor road itself. That was all by the Public Roads Administration. It was called the Public Roads Administration at the time. Cozzani, of course, there were several buildings and that kind of thing..Well all those maintenance buildings and those kind of things where the trucks are kept and equipment is kept, all that kind of thing. That's the principal thing that I think he did.

And he got a fellow named Klement, (sp.). ? Klement, his assistant. Klement was a professor at the University of Georgia. And he was the brightest engineer that I know anything about. Well, it worked out that Brandon? Klement became the chief engineer and Cozzani retired and went to Florida. But Cozzani was a real nice fellow.

But you mentioned that he wasn't really responsible for the parkway road.

Cozzani had nothing to do with the parkway road, nothing at all.

He would just have been in charge of the structures? And maybe the roads into them?

'Course, you know there were any number of those maintenance areas, like Rocky Knob, the Bluffs and all. Anyway he was interested in this because it was our problem. The Public Roads Administration...they got the contracts, the roads built and they were through. But the maintenance and all came along later, the maintenance of the parkway. 'Course, Cozzani was responsible for that now, the maintenance after the construction.

So that's why he would be on this memo related to the drainage?

Yes.

Okay. I'm interested in the original design, I don't know if you can help me with that. Who the original engineers might have been...(phone rings tape is paused) We were just talking about the road design and whether you might know of anybody who was responsible for that beautiful relationship with the land and the spiral curves.

It seems to me that Ed Abbuehl worked with the Public Roads Administration. At first they had nothing to go on 'cept just go out there in the fields and stay out there day and night working right on down,...with sleeping bags. And they would pick out the location pretty much and they flagged it. Oh, I don't know how they flagged it. It seemed to me with strips of some kind...Anyway they would do a section at a time, maybe from one highway (to another).

I remember Woodrow, (engineer Woodrow), but I don't think he had too much to do with out there in the field. So I don't know who those engineers were. I knew them at the time, good golly, names bother me now.. But anyway that's how it was done.

Later on of course, after the war we had aerial photographs. So those last sections wherever they might be, were located pretty much by aerial photograph. And the last section we built was Grandfather Mountain as you may have heard. That was a real

problem. Because Mr. Morton, Hugh Morton owned Grandfather Mountain. (A) Mr. Macrae was the developer of a little town, Linville. (Linville) was one of the nicest resort towns anywhere, especially back in the twenties and thirties. And I think this was right, that Hugh Morton married Mr. Macrae's daughter and maybe that's where he came into possession of Grandfather Mountain. I'm not sure. But at that time, I think it was the largest single private land holding in the state of North Carolina, was Grandfather Mountain. And as you know, there's a, Mr. Morton built a roadway up on Grandfather Mountain. And he charges a fee, did then and now.

Now it bothered him somewhat that the Blue Ridge Parkway would circle around that Mountain. Least, the best I know it bothered him. Because if it would be very high on the mountain it would get too much view. It might apparently. But anyway he didn't want it up there. He was very powerful in this state. He was a candidate for governor and withdrew. And that's about all I know about it because his quarrel was with the superintendent. And I wasn't in on it, know nothing about it. But they did not get along.

That was Sam Weems?

Sam Weems. Hugh Morton, also was an advertiser. In other words, he spent money advertising his mountain with some of the newspapers. But he was known and had something of an inside track there with them. And they, the newspapers, the media, seemed to do what they could to favor him. At least they didn't take Sam Weems' side of the question. And this went on and nothing was done for quite awhile on Grandfather Mountain because of that.

Then Sam Weems left to go to Australia, Jim Eden (sp.) succeeded him. Jim was a fine western superintendent who came here. Anyway he tried to work with Hugh Morton and the state of North Carolina because the state of North Carolina had to acquire that right of way from Hugh Morton.

They finally set it on the plan a little lower down the mountain. But probably the best place it could be, is where it is at any rate, with the tunnel through one ridge. And to place that thing on the side of the mountain so there was no scarring. Now they had to get, I believe, go to France to get the engineer. I don't remember his name. I knew him. Because to start with there at 221, they didn't want to cut into the stone which would make a proper scar and very expensive. So they built that, its like a bridge work, they would build and then add on and place it right into the side of the mountain. So there's no scarring where the roadway is placed on it. That kind of..I don't know what you call it.

And then we had to have some more land to connect with the Blue Ridge Parkway to give a—well, that's the old Unalassie (sp.?) Trail, to connection with the Blue Ridge Parkway. And the land would have to come from Mr. Morton. And Mr. Morton had declared that he would never sell one foot of land to the United States. (laughs).. Well that pleased me.

Why?

I went to him to tell him about it.

I said. "Now I understand you will not sell one foot of land, I think that's your statement, not one foot of land to the United States."

He said, "Yep." He may have said something different from 'yep' but that's what he meant.

I said, "That pleases me no end 'cause that's a whole lot of trouble. My, oh my, I don't have to buy a thing or go to any trouble at all. There won't be a connection there. That's great."

"Oh", he said, "I didn't say I wouldn't give it to you."
So he said, "What do you need?"

I showed him on a map what I had to have. And he donated that to the United States.

Were you surprised?

Not as much as you might think. Because that was important to him for his business. That Blue Ridge Parkway traffic coming off there that would mean a lot to his business. Hugh Morton's a fine man. I don't want to discount that. He is very intelligent. And I knew he was a lot smarter than I was and I wasn't gonna bargain with him.

When did you meet with him, do you recall?

I don't remember the year. Years, now so many years ago, was it (nineteen) seventy? I don't know. That was the last link of the Blue Ridge Parkway, though, was Grandfather Mountain.

Let's look at few of these memos that you were involved with..

I'll tell you something offhand. If you were to go and looking the records there. Memos that were official memos to anybody about anything. You'll never see my name on them. I wrote them. But always for the superintendent's signature. Sam Weems liked it that way. Some of the others, they don't do that anymore. That's my way of thinking. It ought to be . . . It should come from the superintendent. He's the boss. And when he signs it he knows exactly what it's all about. And there's no side issue here that comes up to surprise him.

Would there have been anyway to identify it as your work versus somebody else's?

No. I would write it. Well, yeah. You look at the bottom of it sometimes there's W.H.O., originator. But I never signed anything like that. But there are deeds. I used to write, all the land we bought, I wrote the deeds. And they had to go to the Attorney General and be approved by him. But there was nobody else to do it is the reason.

How much land did you actually buy?

In all, I don't know. It would take me a long time to even guess. 'Cause it's quite a lot. We had to (get) extra land... Good golly, it amounted to several thousand acres I guess, just parcels here and there.

How much did you say? Seventy thousand?

No, no. several thousand. I don't know. We bought out some entire farms. They're there yet. The reason for it was to prevent some development.

Now at Ground Hog Mountain there was a private crossing for instance. And this minister from M. Airy built a little summer home up there because somebody gave him

the land, I think. And he became interested in it and with that backing from the man who had money, began to build homes all over it. Then he wanted to build a motel. And he did put in one of those and a restaurant, and all like that.

Well, that road, as I said, was limited in width to something like ten feet at a crossing. But there was no (can't decipher) then. And (I) called some lawyers from the Washington office down there. And they suggested an underpass so there were no at grade crossings. But the only trouble which I'd already told them, it said that 'ten feet wide crossing at grade at station so and so'.

And at grade means at grade.

But they said that didn't matter.

It did matter. And they had to give them another place, (an) opening down the road. Lost the whole thing.

But anyway that was the only serious mistake that I remember seeing. But no, we did buy out, because there was some land up there, there was money available for several years all, anywhere the park service needed, to buy land to protect, for protection or whatever they might need. Oh, I remember, I know now ,they tried to raise money by donations and that kind of thing now to get money for that kind of thing.. I don't know how well they are doing with it.

Okay, in one of these, (rustles papers), it says, I think it's by Mr. Taylor, Mr. O.B.Taylor, he talks about the plant Cerisia. Is that one of the plants you were thinking about for stabilizing?

Yes, Cerisia is a Lespidisa, a perennial Lespidiza. It grows fairly tall and it's not good for much of anything else much except groundcover. it doesn't make very good hay. It's coarse. But it is a wonderful, wonderful groundcover. Once you get it established there's nothing going to take it out of there.

Were you trying to use plants, I know the Parkway was, trying to use plants that were native to the region?

That's so. We were not allowed to use exotics anywhere. And I think that's proper. Then I remember... oh, some of the plants that the landscape architects used to like to preserve was a shumac. I don't know how it is. But (to) our landscape architect from Illinois, it was a Sumac, su-mac, which is all right.

And I remember it came up one time down here one time... some guy was sort of an authority, they asked him why it was down south...

This lady said, "I notice here they say Shumac and that couldn't be right, could it?"

He said, "Shure, it could, Shugah!" (laughs)

(laughs) Perfect response. Who was it that said that? One of the landscape architects?

I can't remember.

That's great.

That's one of the reasons I'm so bothered about it. My memory of names. I can't recall names real quickly.

In one of these, and this is by Thomas Allen, Mr. Allen, the Regional Director, he talks about some problems with the disposition of brush by burning because apparently the parkway was burning its own brush along the motorway but advising the farmers nearby not to burn it. He says here, "Its not clear whether or not our own burning is given the same consideration as concerns humidity, time of day, as is required of our neighbors. And that the cost of brush disposal is a consideration." But I don't know if you came across any issues like that.

What's the date on that?

That's 1947, September 1947.

So all right, it would be right after that. But that did happen out in the field some places. I didn't know that exact memorandum, anything about it. I suspect O.B. Taylor had something to do with it. O. B. Taylor visited the parkway and so on. Mr. Allen didn't. But of course there again, O. B. Taylor was a conservationist whom I admired and I trusted. He had an unusual gift, I think. You could have a meeting with different ones contributing to the discussion and after it was over then he could have a stenographer or secretary, (and he would) dictate like, (snaps fingers). every bit of it just like that, just perfectly. Not many people could do that. I couldn't.

Good memory. In this other one which is the one that you wrote with Mr. Cozzani in 1947 and also with Mr. Johnson, Wallace H. Johnson, it said, it was pointed out that the "Blue Ridge Parkway probably has a more well rounded program of soil stabilization than any other federal agency or any state. The methods and techniques employed are as advanced as those used by any governmental agency." And in some of the other memos, I've seen the Blue Ridge touted as probably the best example for soil stabilization.

We were leaders at that time, as you know. 'Course now, it's different. But in 1945, as I said, I don't know of another roadway anywhere that they even bothered a whole lot to hide the scars. Now maybe they did but I didn't see them. High way construction...You'd simply go out and build it. (fire alarm goes off in building and the interview is interrupted.)

We are sitting outside after the fire alarm went off in Mr. Hooper's building. We were just talking about plants up on the parkway. One of your favorites was the *Rhododendron carolina*, *carolinium*?

Yes.

I like that one, too. Can you recall some of the other people? Ken McCarter?

Ken McCarter was an architect. There were several of them. Ken McCarter was an old like parks employee coming to the Blue Ridge from some other part. He was very, very careful about anything that he was accustomed to.

In other words, on the Blue Ridge Parkway you take liberties. You could open up a view, cut the trees. But in the National Parks you can't cut the trees at all. And it made it a little bit difficult for him to adjust to these things. But he was a good architect, as far as that goes.

And then there was a fellow named Grossman who was also an architect there. And he designed the buildings that are now used by the concession, National Parks Concessions, at Bluffs, called Doughton Park, the hotel, the gasoline station and the restaurant. And of course ,another one down at Crabtree Meadows, that restaurant, and then one up at the North end. Good golly, why can't I remember that one.

Not Peaks of Otter?

No, not Peaks of Otter.

Mabry Mill?

Nor Mabry Mill.

The hotels, restaurants at Peaks of Otter are a separate concession. Don't know why I can't think of the name now. But anyway he's from Raleigh, a hotel man. I think he started out with just restaurants but anyway he had some partners. And those buildings are buildings they built with their own money. They owned the buildings. And that's what got on a concession contract. I don't really know the contract. But that's the way that operation...but the buildings in Doughton Park. Those buildings were built with government money so they belong to the park itself. Then after that, after those were finished, I don't think there's been an architect there on parkway staff.

I don't know what the staff is like now. It's quite different in nature than anything that Sam Weems...(indecipherable). He would never try to get along at all without some landscape architects on his staff. Now he was an engineer himself but then that's just a difference (in training). He recognized the need for landscape architects.

(Interview relocates to a different building)

Okay we're resuming our conversation and actually, I will put in a new tape here because (we will run out soon.)

Let's see, what were we talking about. About (Dale ? the head ranger). About his rangers. He wanted 'em all just so. And he always talked in a rather deep voice, which he had cultivated to some extent.

Anyway he went with Sam Weems down to meet a congressman, can't remember where it was, Orchard Gap, I guess it was. Anyway, Sam, of course, used his official car but he had Dale, the Chief Ranger driving for him and as they pulled up there waiting for the congressman to show up, the congressman came in his Cadillac with a black chauffeur and pulled in.

And Dale said, (deep voice) "Good lord Sam, look there! Got a chauffeur."

And Sam said, "He hasn't got a damn thing on me! Pull right up there beside of him." (laughs)

(laughs) Funny.

Weems was a bright man though. As I said, alot of people didn't like him because I don't know, he had his way about him. Sometimes he'd call it "My' parkway." and that kind of thing. That's the way he felt. He possessed the doggone thing. But he didn't miss anything much.

And as I said, when you wanted to get something done, Sam Weems was the man to do it. He managed to get to Washington to get funds to complete the parkway. And he kept on getting funds. .. Some of the other areas (didn't get funds.) (But) he would just get funds when nobody else could.

And I don't think the parkway might have been built to this day, I mean completed, if it hadn't been for just that kind of initiative that he had.

And as I said, when you think about the Linville Falls area was going to be sold. Somehow he heard about it and managed to get Mr. Rockefeller down there. I don't know whether anybody else would have bothered about it or not. But he knew what that area was like. I don't know whether you've been down to Linville Falls or not, but it's gorgeous.

The first time I went down there with Sam. We went up on that ridge, high above, looking right down into it. And I don't remember why we were up on the ridge at the time. And it was Easter time. And some fishermen, two, were down there. They had a fire going or were trying to (cook).

And Sam went looking over and said "Put out that fire!"

I said, "Mr. Weems, they can't hear you."

He said, "You sure about that?"

I said, "Why, they couldn't hear you down there above the falls, if you fired a cannon."

He went up there. He said, "You damn son of a gun, put out that damn fire!" (laughs)

Laughs Did the fire keep going?

Oh, (yes) they couldn't hear him at all. But he didn't mind.

Anyway things like that, (Linville Falls), added to the parkway made a difference. Same way with the Cone estate and the Price Park and all that. I don't know maybe somebody else would have done the same, managed it, too.

But I don't know that they would either.

But those areas are preserved and they all belong to the parkway. So it makes the parkway interesting. You can spend a lot of time on the parkway visiting all those things.

That's right. What did you like best, or what do you think was best about the work that you did on the parkway?

Well, really I think the best thing that meant more to the parkway than anything else, was what I did initially. That is, get those areas on the parkway that were open at the time, get somebody to use them and lease them before they regenerated. Because there's no money, there wasn't enough money to maintain them in open. The maintenance money would not have spread if they had tried to keep them open. And they wouldn't have been open. They would have grown up.

And then that too, as I said, with that program on the parkway, we expanded it to our neighbors. And getting a good relation with parkway neighbors, that's very important. I tried to know in name and be acquainted with every neighbor that lived right along with

us. And I think I knew just about every one of them. And when trouble came I knew who they were and they knew me.

And by working with them I think we made the countryside there that we tried to expose to the travelling public, far more attractive and interesting. I know it is. Because if you didn't have any interest along there, just drive along the parkway. I don't care how beautiful it is after awhile, but that's five hundred miles of that blooming thing and you have to have some variation. At least, that's what I think. I don't know.

Were you dealing with mainly the farms and people immediately adjacent?

Mostly that. Yeah, as I said we sometimes we would go out and couldn't find somebody that could handle one of those large parcels of land because they didn't have the equipment, didn't have the cattle, something like that.

I remember one that we had like that. He had to sublet, if you will, the pastureland to somebody else. That person withdrew his cattle (and) he didn't know what to do. The ranger went to see him. He wrote this letter to the superintendent. He said he couldn't get anyone to sublet or bring the cattle in. So he decided to graze it himself. Imagine a man grazing himself!

You'd have to be very hungry.

Yeah, you'd have to be very hungry. But anyway (it was) all that. And to this day I think, being right there early in the game when it was still open land and you could do something with it.

Otherwise I don't know what the parkway would look like today. It certainly would not have been what Stanley Abbott and his very, very capable group of landscape architects planned and wanted it to be. That master plan is something else. I don't know.

I never thought much about such a thing as a landscape architect until I was with the parkway. But I can't tell you how it affected my life.

And now even to this day, even a home, anything like that, public buildings and so on....(with) some of them you can tell there's a landscape architect that's been there.

One time I remember a lady, a famous artist but I don't remember her name, had a summer home at Roaring Gap. I never have been to her place. But they tell me where it was a little old private road led in. And that little old private road wasn't a little straight driveway. It curved around beautifully through the trees, there was the house and plantings all out in front. And believe it or not, she disliked straight lines so much, she had the front of her house made in a curve. (laughs)

She carried it all the way through.

I remember how, you see, as I said, with landscape architects and engineers. Engineers like straight lines. That's all they want, straight lines. And if you had built that parkway with engineers, you'd have straight lines all over the parkway.

Right. Did you work with a lot of different types of professionals? You said that you worked with the landscape architects and soil conservationists.

Oh yes, oh yes, mostly with them.

Who else did you work with?

We had a.. I started to tell you I worked with a historian. But I didn't because he didn't work. (laughs)

But that's something they should.... Strangely enough, there should be a history of the parkway. Now there's a man named Harley Jolley did a history book. He, at that time, was not employed by the parkway. He just worked some as a seasonal ranger. And he didn't have his doctorate or anything at the time. That's what he did his doctorate on. But as I said, they may have a historian now, I don't know. But they've had some. If they have ever considered anything like that, I don't know it. But maybe they did. But Jolley, well, he is a historian but he's an unusual speaker. He can hold an audience just almost spell bound, anytime, anyplace. He doesn't have to be prepared for it. He can just do it. And he worked in interpretation.

Now I don't have any faults to find with interpretation, as such. But it's a rather expensive program. I don't know how many interpreters they have up there and so on, on permanent, or what. But they really don't reach a whole lot of people. If they have an audience it's a very small audience. I've often wondered if the money couldn't be a little better spent in a different way. By that, I meant having your rangers because they are in contact with people all the time, trained more in history and interpretation and so on like that so that it works in with the job of law enforcement. Law enforcement becomes a little bit dull if that's all you're doing. And sometimes that is all they do. And sometimes they almost hunt for something to do. And they do a good job.

I think, by and large, that they are, I don't know whether they are now but they used to be, I thought moved. Most of them were moved rather frequently which didn't allow them the time to really become acquainted with the district they were covering. But that's just an observation.

Is there anything you would have changed in the way the parkway was designed or managed or your own work in soil conservation, knowing things you know now?

Not really, not in the design or anything like that. No, no, no, no. I don't think anybody would. To me, that design there is remarkable. You couldn't build a parkway. There is no way to build a parkway of that length today. It couldn't be done. Cause I know there was a proposal to extend it into Georgia. And it ran afoul of so many things. You run into...

Land acquisition alone. We were exploring the proposed right of way down there one time and we came to a sign. And it had: "No Trespassing. Survivors will be prosecuted." (laughs)

That will frighten people.

That was in north Georgia. Anyway when you think of that many miles to acquire of right of way. And some of it was within the city limits of Roanoke, for instance, and Asheville, too. But they did it at that time. Now, with all these developments around... I don't know any way in the world it could be done. And the price of land. Gee, a lot of it at that time was twenty dollars an acre, thirty dollars an acre that sort of thing. I don't know what.(it is now). It just staggers my imagination to think...that mountain land now...Anyway it was sort of cheap then. Now, a lot of people want that mountain land

just because of a view or something like that. And it's the most expensive land you can find. So I don't know...

What do you think can be done to maintain that parkway scene, or to keep the feeling?

It's gonna be real difficult. They are gonna have to, in some places, acquire more land. The other thing they are going to have to do... It bothered me. I don't know what happened about it but the state of North Carolina, it seems to me (the state) passed some kind of law that they were going to pave and widen and put standard all the roads in the state.

But now there are any number of those roads in North Carolina passing the parkway at grade. But they are limited in width to maybe fourteen feet. It could be twenty. I know it's not very much. And that's all they have. Now they somehow prevailed and persuaded I don't know the superintendent, I believe, that they were going to continue, that they were going to widen and they needed their standard width, which was so and so. Well, there is no way legally that the government the United States of America, can convey, I mean sell now, any such thing as right of way, or even give it away to the State of North Carolina.

The only way it can be done, and I wouldn't want to see them build those roads but if they do, (is to) have a grade separation. Otherwise if you widen them that way those lands out there will be exposed. And all kinds of developments will take place. That is the most dangerous thing, as far as I know, to maintaining the integrity of the parkway, is not to have that kind of thing happen. It's a bit scary.

What about the farms that are right up close to the parkway . I noticed in Virginia there are so many people in those farms, tending them.

That's right. And I hope they stay there. I don't know what's going to happen to farming in generally. 'Cause small farms now are not very profitable to support a family. I can remember when a farm family could exist somehow doing farming.

Well, those mountain farmers are the most self-sufficient people in the world probably. They didn't buy very much other (food), than things like salt, sugar, as far as groceries are concerned. They just didn't buy much of anything. They produced it on the farm. With very little income they could bring up a family, pass the clothes on to one another. Some of them would go to school (and) become rather well educated. All because of the support of the small farm.

But small farms now, I don't know ...the other thing that is real troublesome, so much good land now is being taking out of farm now and (put) into development. As you know Raleigh now is spread out over twenty or thirty miles instead of just a few miles. These developments are covered with roads, streets and like that. And you get a whole lot more run off from your rainfall and so on like that, which gets more troublesome as far as flooding is concerned, for one thing. But it also takes (the) good farm land (that) is the easiest to develop and leave(s) some farm land that is not easy to develop. So the best farmland is being developed.

But people don't like zoning. I think, sometimes they are going to have to zone. And another thing now, of course, there is taxes. You get a farm that is worth three or four hundred thousand dollars market value near a city. Someone inherits and pays the taxes.

Good golly, he'd have to borrow money to pay his taxes. Now I don't know enough about it to make a verdict. It's a dilemma.

But we have a new Secretary of Agriculture, a lady. And maybe she will get some good things done. But our government has to think (it) through. There has to be a lot of thinking done about it. But it's hard to get things through congress now to benefit the small family unit of farming. I hate to see it happen. It's troublesome to me. Especially everything about it,...

These farmers used to manage with very little, as far as expensive equipment is concerned. They had a team of horses, and a plow and a harrow. And a few small things like that that didn't cost much. But you go into farming now and you get a tractor that costs maybe twenty or thirty thousand dollars and you get a hay baler and some of these other machines you need. And first thing you know, you've got an investment of maybe a hundred thousand dollars. You don't use it very much. So it makes it very difficult for a small farmer to own that kind of equipment using it as little as he does, and still make a profit on the farm. And of course, there are these tax rates I don't know.

But anyway there are a lot of these little farms along the parkway there. And I think they are nice if you travel along and see them. I hope somehow that they stay there. And I like cattle. Living creatures add interest. There is something about them. Now of course, wild creatures are coming back. Deer, for instance I can remember the time you'd never see a deer. You go down some of those places now, around Doughton Park and so on, sometimes they run across the road in front of you. Any kind of life makes (the scene) more interesting.

Tell me about the fences again. We talked about that in the beginning.

There is more than one type, there is one called the crooked rail which doesn't require a post but is sort of a zigzag thing, a rail on top of a rail. That takes up lots of room. Sometimes it's hard to keep the weeds out of the corners and so on but I think they are very attractive. Then we had what they called post and rail. You have a post and you extend a rail from one post to another and build it up with enough rails to make it as high as you need it. That makes a very attractive fence also. Fortunately we started treating the rails a good many years ago. But we already had some fences up that hadn't been treated. So I don't know how long those old chestnut rails will survive unless they are the ones that have been treated. So rail fence may be something that disappears. But I would like to see them stay. (But) I think on the parkway they add a lot.

And you said that the engineers wanted to place them according to some type of formula?

That's right. They wanted to place them a certain distance from the parkway motor road so that in mowing they would just have a straight one, two, or three swaths of mowing. That's very easy. But when you curve the fences around to fit into the topography of the land then they may have to come back and mow a place in one of those curves and less in another place and all that kind of thing. And it does cost a little more as far as the mowing is concerned.

But if you're going to have a parkway you shouldn't think too much about just exactly the strict economics of something all the time. You want to maintain it, yes. But you want to maintain something that's attractive and in keeping (with the landscape) instead of maintaining something that is *not* attractive and in keeping.

So, those (fences) I hope, I hope that they will continue. Now I don't know what they may be doing now. But I do know as far as mowing the slopes is concerned and so on now they are not mowing them the way they did back many years ago when you had a landscape architect in the field to direct the mowing operation.

And you said that when you were out with the landscape architects in locating, putting up the fences, you did it by visual judgement?

The fences? Yeah, I did most of that though. They trusted me. I knew what they wanted. I lived with (landscape architects). Now they taught me. I didn't teach them. But working with them ...you see its like Stanley Abbott said one time.

I said, "Maybe I need to know something about landscape."

He says, "No, it's just judgement, Bill." He says, "I don't care how you (indecipherable). You know, you want to have something that's attractive. Look it over and see what's attractive." He says, "That's all there is to it."

And course, that isn't that all there is to it either. You get into some pretty knotty engineering involved and landscaping and all that kind of thing. I know that. Another thing about this, in the construction of the parkway, Stanley Abbott made sure that he always had a landscape architect on the job all the time. And they would want to save the trees and on certain slopes how they shaped them and all like that. That's a landscape architects job. And that's why the parkway (is the way it is).

But as I said, when you see how that motor road is blended in you don't even think, at least I don't think about it-- the construction. I don't notice anything about the construction part. It's just something that fits. I may be wrong but that's the way I see it.

Then some of the stones, cut stone...I don't know, Mr. Abbott had them

There are not too many places where you go right through solid stone but when he did I know some of them, he had them break it up so it wasn't just a block of solid stone.

In what kind of situation would that be, where you are going through the mountain?

Sometimes you had to make a cut through solid stone and instead of just making it like slicing a cake or something like that, he wanted it broken up so that it wasn't just one straight line of stone, is what I'm talking about. And I think it helped. And the other thing(s) are those beautiful bridges on the parkway. And some of them curve and all that kind of thing. But I mean I would never...I mean that took some doing to fit those stones so they don't. .. I don't know how to describe it but they are different sizes and all that sort of thing so its not a monotonous thing like putting brick together. And then when you do that and they curve that bridge that's...

That's not a simple task.

That's not a simple thing.

That's art.

That's when landscaping gets into engineering. But one thing about it though. In the Public Roads Administration the engineers were real good people And I know when I

first started...I was put under the supervision of Stanley Abbott the resident landscape architect. I traveled with him sometimes with the Public Roads engineer Mr. Woodrow.

It was real educational to see an engineer and a landscape architect, to see how they could blend their professions together to create that roadway that we call the Blue Ridge Parkway. It had to be something different. If you just had an ordinary highway as some people might have envisioned to begin with from Rock Fish Gap, anyway Shenandoah National Park to the Great Smokies. Anyway if it had just been an ordinary highway, I think it would have been money sort of halfway wasted. Because this is not a roadway built for regular traffic like the road system in Virginia and North Carolina. It's something special for recreation and enjoyment for now and future generations. That's the other thing I always thought about. in trying to protect the fields that we had that we would lease to our farmers. You know, if it was just for you its one thing. But its supposed to be for ever so you don't want to let some farmer come out here and use that land in such a way that you lose that topsoil and eventually have something there that you just have to plant back to trees or something to protect you.

You've lost it. Any loss is something that you just don't want to tolerate.

Well, do you feel that in your work that you were successful in turning around some of the losses?

Well as I said, I think we really did. Because we inherited a whole lot of land, as you've seen from some pictures, some land that was already topsoil destroyed. But at least we brought it back into use. Now you can't build topsoil because I think it takes nature six or seven hundred years to add one inch. If you use it and abuse it and let it get away, its just gone. That's all there is to it.

Oh, we made a few mistakes. When I say we, the parkway. But the worst mistake is something we've already discussed.. the culverts under the roadway just discharging water right out into wherever it might be.. I think its all been taken care of pretty well.

Did you try to put some of those culverts to rest and take care of the drainage another way? What did you do?

Well, we would divert the drainage by a ditch or something, like what you might call a terrace but a ditch really to carry it somewhere safe discharging into woodland. You're always pretty safe turning it into woodland. Anything else you just can't turn loose that much water across any open field. That's all there is to it. You just can't do it. Well I think its all been pretty well handled. I hope.

But one thing about all that. Any thing that you do, you got to maintain it and watch it. I guess they are doing real well. And I don't know that they have the money now.

Strange that an operation as big as the parkway gets less money, considering the size of it and all the amenities, than some of these small areas. Some of them get more money. They don't need a whole lot but when they have a staff that's larger...Well, I know that Booker T. Washington Monument up in Virginia they probably don't have over a few hundred visitors a year. Well, if you spend fifty or sixty or seventy thousand dollars a year for staff over there, you spend an awful lot of money for what you get, as far as the pubic is concerned.

But you see on the parkway you get I don't know how many millions of visitors a year. And in a sense, that visitor business is exaggerated. A lot of people just cross over that

(traffic) counter and they may not be real visitors but they get counted. And in a way they're visitors. But they (the parkway) really get(s) a lot of visitors.

And I don't know whether they bother with snow removal or anything else like that now. All of those things are very expensive. I think sometimes way back we used to have some pretty big snows that we got in too much of a hurry to remove the snow. Because it was winter time and if you let 'em alone a week or so it would be gone anyway. We didn't entertain enough visitors that it would matter. A lot of those visitors would be just local visitors after you cleared your snow. I don't know. All those kind of things. Well, I shouldn't even be talking about it because I don't know enough about it really.

Well, we're going to wind this down. I'm interested in what the values were that you held, and perhaps that other people held who were working, many different people in different professions, on the parkway. What made it gel?

What made it important to us? Well, I had a feeling about the doggone thing, the parkway, that 'twas to be here... I always thought it was something that would be here forever, for everybody else, too.

I know the first time I drove on the parkway I was just a visitor. And I love mountains. And gee whiz, I know I was in some kind of a heaven almost, (to) see all those mountains. I just couldn't get enough of it.

And after a while you get the feeling that you want everybody to have that same experience that you have (had), forever and forever and forever.

And what I want to see them do is protect that parkway, the integrity of it and every other aspect of it, just as much as possible like it is rather than have something encroach to the extent that it will destroy some of those best exhibits that are there now. Because as I said, the parkway ought to be a window to the Blue Ridge Mountains. It should always be something that is protected.

And another thing, it has brought... Oh my what it has meant to those mountain areas, the money that has flowed from this Blue Ridge Parkway. It's meant thousands and thousands and thousands of dollars every year to those counties. And always will.

What do you think are the premier places? You said there should be some places that just really ought to be protected and preserved along there.

I think we don't have time to get into it. I don't know whether to add on anything or not. The parkway gets... the best of it. And some people have proposed it. I don't know whether you ought to expand (the parkway).

Mr. Hope's daughter in law mentions that it is time for his dinner. The tape ends at this point.

ADDENDUM

Below is a typed excerpt of a hand written letter written by William Hooper to Mary Myers, Sunday, January 7th 2001

Thank you Professor;

...I am still bothered by the unfortunate interruption. (The fire alarm going off in his building during the taped interview.) So bothered that I forgot to explain the use of Special Use Permits: Private use of Park Lands must (legally) be covered by Deed Reservation or by Permit. Adverse uses such as private roads, telephone and electric power lines, water lines or cattle lanes are described and illustrated by sketch on the permit along with restrictions or information. Annual fee is much higher for these permits, commensurate with the use, than the fee for conforming agriculture. The agricultural use is described along with restrictions and the contributions of maintenance of fences or other facilities if necessary. Rotation of crops, pasturing or harvesting hay along with fertilization and land practices are described as features of the contract.

I am not familiar or informed about all the details of the agricultural uses since my retirement but I was informed by certain Parkway employees that the Special Use Permit had been abandoned entirely for use of small parcels with low annual fees in favor of a verbal agreement (By whom and how managed I don't know). On larger parcels with higher fees, a permit is still issued. This is patently wrong even if it was legal. Some permittees are thus charged a fee and others use the land free of charge and free of any particular obligation for using the land properly.

I can't overemphasize the need for strict comprehensive use of all legal means to protect the integrity of the Blue Ridge Parkway. Again, I insist that any widening or further opening of public roads across the Parkway Right of Way should and must be permitted only be grade separation with no access to the Parkway motor road. The State cannot condemn and take or purchase widening of the right-of-way without legal arrangement with the Park Service.

The beautiful ground cover on Mount Mitchell in 1940 was something to behold – it was Shamrock...

It was a memorable pleasure to chat with you.

Bill

p.s. We found in the Smart View area, way out front on the right entrance the pungent Ramps that are featured in the Carolina mountains in the Festival of Ramps.

**Interview with Ted Pease,
Landscape Architect of the Blue Ridge Parkway
192 Cherry Brook Lane
Boone, NC
828-264-3860**

Mrs. Jesse Pease, Ted's wife, was also present during the interview.

November 5th 2000

Interviewed by Mary Myers, Asst. Professor
Department of Landscape Architecture
College of Design
North Carolina State University
Raleigh, NC

Ted what is the correct spelling of your name and date of birth?

I was born November 21st 1909. P-E-A-S-E, Ted or Theodore is the first name.

What do you have a degree in?

What matters mostly is my college. I went to the University of Florida in Gainesville, Florida and have a bachelor's degree.

At that time, the person who was in charge of the school of architecture was also the state architect, a man named Weaver who we called King Weaver. He was determined that anything that had architecture in it at all was in his department. The man who was the head of landscape architecture said "No Way." So my degree wound up being a degree in landscape design which didn't make any difference. The Civil Service Commission accepted that. I took an exam in 1930, I guess, or '31 and from that exam my name... I passed it and my name was put on the civil service register. You weren't around then but jobs were scarce, Or there just weren't any. See I graduated in '31. And in '33, one day I had a telegram that said "Must know today if you will accept the job in the Smokies." signed Ludgate whom I didn't know. It turned out that he was the resident landscape architect in the Smokies at that time.

The CCC program was just getting started and they were flooded with CCC Camps. I guess they had a dozen or more in the park. They were trying to find some more personnel, supervisory engineers, architects and landscape architects and he got my name from the civil service list. So I borrowed a dollar and I wired him back and said that I would accept the job but to send me some more details on it. So we had a letter in a few days. We were in Florida then. It said the job was in Gatlinburg and that I would be paid the going rate for junior landscape architect on the civil service scale which at that time was \$2000 a year, minus fifteen percent. If you remember, the president, President Roosevelt was just getting going and one of the first things he did was cut all federal salaries by fifteen percent which I think was a great thing to do. And we got that back five- percent at time after two or three years or something like that.

So we set sail for Gatlinburg. The roads at that time were not as good as they are now and we got onto dirt roads up in Georgia, dirt roads and detours. WE came into Gatlinburg from the Maryville side, the west side. We were aiming at Knoxville but we finally got there.

But my job there..I don't know, there were a bunch of young freshly graduated landscape architects and a couple of older ones. Malcolm Bird was one of the older ones and he

worked in the field mostly. And another one, a man named Leeman (sp?) was from Charlotte. And he had worked with..., oh shucks, he had an office a landscape business there, had written a book. Anyhow, Leeman was a good experienced man so he was outside. I had no great big amount of experience but I knew how to work and I knew something about work and construction.

How did you know about work and construction?

My father was a civil engineer and he railroaded all his life. And he worked mostly in location and construction of the railroads. And that includes a lot of grading on the railroads.

Summers, for several summers, my grandfather had a dairy farm in New York State. Quite often in the summer time my father would schedule his work, if he was gonna be out in the wild woods somewhere, and we'd go up there to the farm and I'd work. Of course, my granddaddy and my daddy believed that boys ought to work at something. So I knew something about work as such and Ludgate had me outside practically all the time. The other fellows were all good or fairly good draftsmen. That was about all the experience most of them had had.

They used a lot of those CCC crews for trail building. At that time the Smokies had only two or three trails, one along the back bone and one from Gatlinburg up to Mt. Lacon (sp). So I was able to get around through the brush it turned out. And I did spend a lot of time locating trails. We had good topo plans of the park. Lud and I, or I by myself, would make a map location of a trail. Generally they had a backbone of a trail system in mind but not located yet.

And then they had a fellow there named Wylie Oakley, the roaming man of the mountains, he called himself. He had worked mostly as a guide for visiting fishermen and important people who wanted to go fishing. And Wylie was supposed to know every creek and every ridge in the Smokies. And he admitted that he did without any fresher(sp) at all. But he didn't quite. Because they assigned Wylie to me to show me which ridge was where. And generally we got along pretty well but couple of times we weren't able to get out by dark. And we had to, as Wylie said, had to lay out all night. She, (Mrs. Pease) didn't particularly like that because I had no way of letting her know. We had no radios at that time.

Mrs. Pease just said there were maybe two telephones in the town of Gatlinburg. And you didn't have one of them?

One was in the park superintendent's office and they had an extension into the Bureau of Public Roads office. And the fellow who owned the hotel, Charlie Huff, the Gatlinburg hotel, the Mountain View, had the other phone. Gatlinburg was a nice little mountain town at that time.

What year was that, Ted?

The year was 33.

So you were primarily working on trails in Great Smokies National Park?

Yes. I would locate the trails. The other fellows just had no experience at all, close to that line. For instance, we would make a map location and from that would figure a grade that we would probably need to get from this point to that point. And then we used an Abney

Level, I don't know, are you familiar with that? An Abney level, you hold the level up to your eye and look through it and you have a bubble that goes up and down. It has a quadrant built on it and you can set five degrees or ten percent or whatever grade you want to run. And you have someone with you, Wylie Oakley, and you send him out ahead and flag him up or down the hill until he was on the grade. And then send him on and you tear off a strip of red cloth and you tie it. That's why we called it flagging the trail. And then the construction would follow those flags.

Was Wylie part of the CCC operation or did the park service hire him?

He was, Wylie was hired as what they called a local experienced man. And he got a little more pay than the CCC boys. He got thirty dollars a month, I believe it was. And their board and clothing, the army furnished that for them. Wylie, he got some of his clothing and he took advantage of whatever was available.

He knew the main ridges of the park but he didn't know everything. For instance, I was locating a trail to Alum Cave. Have you ever been in the Smokies? Well, Alum Cave is a very popular visitor point there. It's not a cave but a big overhanging bluff. During the Civil War, they dug or quarried alum there to help in making gun powder. And the trail to it went straight up the hollow and it got steep before you got to Alum Cave and they used packhorses to pack that stuff out. But its an important trail in the park. It's the shortest trail to Mt. Lacon. Its five miles from the highway to Mt. Lacon by that trail. And it's a foot trail only, no horses. That's the first trail that I located. Wylie kept talking while we were running around there in the brush where he got caught in the rain one time and he said there was a big overhanging rock that he said had a hole up through it to the ridge. And while he was in the rain there, there was a creek right at his feet and he caught enough trout to feed him there. And so he stayed there until it quit raining. And he kept talking about that. So there was a little creek right down where the trail started. And I said, "Well was it this creek?" Yeah, this was the creek. So we went up that creek and then it forked, and then it forked again. And Wylie would say, "This is it here" and we'd beat our way up through the brush, till the creek got down to a trickle and gave up altogether. And he'd say "Well maybe this wasn't the one." Well, we'd go way back down and start all over again. And, finally we found it and I managed to get the trail followed up the creek and up through that hole. Now we call it arched rock.. And when I left there you had to kind of scramble up through but The last time I saw it, before I left, we had made a plan for steps up through there and they were partly built the last time I saw it. And beyond Alum Cave the trail went up to Mount Lacan. It is one of the principle points in the park for visitors. A fellow, the son of the man who owned the hotel, Jack Huff had gone up there and found a spring almost on top of the mountain. So he built a cabin there and would take visitors up. That was one of the first trails that they built. He would keep take people up there and keep them overnight and feed them and charge them. Its still operating. I don't know if Jack runs it now but he had a concession to operate that.

Did you feel that your experience working on the trails in the park help you later on with your work on the Blue Ridge Parkway?

Yes, because we have built quite a few trails from the picnic grounds and campgrounds along the parkway.

When I came up here as far as I know, no one on the parkway had ever actually built a trail. We had a man or two, on the other side, who had some trail experience but not much. Anyway, I more or less, worked all up and down the parkway on trails as we built the parkway. Like at Crabtree Meadows, there's a nice waterfall, about, oh, nearly a mile down there. We wanted a trail there and a trail back up. And it was Forest Service Land

so we had an arrangement with the forest service to go ahead and do whatever we wanted to do there..

After I came up here we got a couple of CCC camps, one up in Virginia at Rocky Knob and one here in North Carolina, down toward Marion, down that way. We had CCC labor that we used mostly on trail developments or modern roads. We had, of course, roads in nearly all of the picnic grounds and campgrounds. We built whatever was needed at the overlooks. In the main contract we could get a road, a little spur that wasn't too long for a parking area, and the area itself graded but not a finished job. We would come in and finish the grading, come in and put the curb, sidewalk and that sort of thing.

Are you aware of the visit by Bob Marshall to the Smokies in 1934? The Secretary of the Interior, Ickes, sent him out to make a recommendation about the route of the Blue Ridge Parkway as it approached the Smokies and I guess it caused quite a stir.

I didn't know him but I do remember the stir. I guess you already know as much about it as I do, It caused quite a commotion. The people in Tennessee thought the parkway instead of staying in NC should detour around in Tennessee somewhere. And the people who located the parkway, Stan Abbot and Ed Abbuehl, mostly, of course, they made a map location first and then they did an awful lot of walking and pretty much had the location fixed in their minds before this trouble came up. They had hearings. I don't know how many. Maybe I oughtn't to tell you this now. But At one hearing, it was supposed to settle things, I guess it was one of the last ones, They had politicians from Tennessee and from North Carolina and from the park service. They made their arguments. The politicians did the arguing because Stan and Ed Abbuehl already had a tentative location. But the politician, I won't mention any names who was interested in getting it into Tennessee said that any body with any good judgement would know that there was more beautiful scenery in Tennessee than in North Carolina. But the North Carolina contingent had provided themselves with a lot of great big photographs that were, a .good many of them came from the Smokies. They had a landscape architect there who was an excellent photographer and had worked at it. Exline was his name. He's not living now but he was a good photographer. He used one of these big old view cameras and I'd go along with him to show him places. It would take both of us to carry the tripod , the camera and all the equipment that went with that. But he was a wonderful photographer. And he would sit for an hour if we needed to with his camera all focused waiting for a cloud to come by if he felt that he needed a cloud for the picture. Anyway they had a lot of photographs that were shown as evidence that North Carolina had beautiful views too. And that was the turning point in that discussion. After I was here, it was already settled for North Carolina. Besides that, you've heard of Robert Doughton, that Doughton park is named for . He was a man of considerable influence in congress. He was chairman of the ways and means committee for years. He was one of the strongest backers that the parkway had. I guess. Bob Doughton was interested. And I don't think it did go through his district. I don't think that was his total interest by any means. He was interested in the whole project and what it would do for the state. And it pretty well worked the way he thought it would.

I want to go back to the educational part. As you know the parkway is such a beautiful work of art, I am trying to find a little more about the background, the thinking, the philosophy, of the people who designed it and worked on it. Can you give me a little more insight into some of the things you were reading while you were in college and working on the parkway

Now Stan Abbot was from Cornell. And so was Ed Abbuehl and they became good friends at Cornell. And when they appointed Abbott to come down and locate the

parkway, Ed Abbuehl was the first person he got. I guess they had both been working on the Westchester Parkway in New York, which was the only parkway in the country. They were both very conscious of scenery and the overall effect of the parkway. And, of course, I remember Abbott said one time, that what he envisioned for the parkway that to the visitor what would appear to be an open area that we built the parkway through. And when we had to go through woods and do a lot of clearing, to keep that in mind. He wanted a natural appearance wherever we could.

And he and Ed Abbuehl both, were very conscious of the flowering plants, the rhododendron and Craggy Gardens and that area is famous for the purple rhododendron there. They were both familiar, or became familiar, with our principle flowering shrubs, azaleas, rhododendron and laurel.

Which dates did you work on the parkway?

We came to the parkway in June of '38. I was on the parkway and up and down until I retired, except for while I was in the army that was, when was it. I retired in '74. I was in the army from '43 till '45.

Did you work in the North Carolina Section mainly? Were there specific sections you are associated with?

When I first got here, I was in the Smokies and Stan Abbott and Ed Abbuehl visited there one time and interviewed several of us. Malcolm Bird had worked with them, I guess, in Westchester and as soon as he could he got himself moved to the parkway. I guess they were recruiting on that trip. They never said so. Of course my name was on the civil service list and it was easy to get me if they wanted me. Up until then I was working on six months appointments. And every six months I had to get reappointed for another six months. When they offered me a transfer to the parkway it was a permanent appointment and that was a big factor. But they were good people and you could tell that right away. I guess they checked me out for what I'd been doing in the Smokies. I don't know whether they ever interviewed Wylie Oakley or not. Wylie, we were friends. He had ten or twelve children. Every time he had a new one he'd get someone to write him a letter to the last important visitor that he had guided while they were in the Smokies. And he would tell them he had enjoyed showing them around so much while they were here and just wanted to tell them he had a new baby at his house and would they mind if he named the baby after him. And in a few days where would come a letter with a nice check and they would say they were happy to have the baby named after him. And he had a child named after just about every important visitor that had ever been in the Smokies. He had several boys, I can't remember all their names. Wylie was...when they sent out lunch to the trail crew while we were building that Alum Cave trail, I was on it a good bit of the time if I didn't I'd go for a day or two somewhere else. But the CCC crew, we had a couple of local men that acted as the foremen if I couldn't be there and they kept things going. And Wylie...they would sent out lunches every day and we had a big coffeepot. And everyday someone would built a big fire and make coffee. By Friday we had about five pounds of coffee. The army cooks, you know, they just poured coffee into a bag, four or five pounds. And the local men who had families that were going home for the weekend would divide up the coffee and the sugar that we had. Most of them would be able to take home a couple of pounds a coffee and maybe five pounds of sugar every Friday. And they liked that.

Was there anyone like Wylie who helped on the location of the parkway, that you are aware of?

I don't know of anyone that did. They contacted local people. Bear hunters and people like that usually knew more about the wild country than anyone else. I know one or two that they contacted, or used to know them And they were quite helpful. Down through Asheville, there were several people there that were well acquainted. The Guardians of the Asheville Watershed...they claimed that they knew that area like your hand. They knew the boundaries of it pretty well. We had to get passes. I actually got arrested once for trespassing because I didn't have my pass with me.

You were arrested because you didn't have your pass with you?

The parkway was built from Black Mountain Gap where a road up to Mount Mitchell crossed it. Down about, almost five miles to Balsam Gap. During world War Two it was gravel not paved and it was not open to the public. We had a gate at Black Mountain Gap. There was a lot of windfall there during World War Two. After I got back they wanted me to get in there and make an estimate of the big Spruce and Red Spruce and Balsam that had been blown down.

Did the road cause the blow down? Did the road itself, the fact that it had been cut through the forest, do you think that contributed to the blow down?

Well yes, any time you make a road through the woods that's on a slope you contribute to that somewhat. We tried to work it out so it wasn't so obvious. You've been to Doughton Park? The restaurant, the gas station that's right on the parkway and the lodge is all built ...it was all designed by a fellow who had made a study of the American, HABS, historical American buildings in the Smokies. He came to the parkway and designed those buildings. They were all built of lumber that we cut from those down falls. We had a sawmill and sawed it ourselves. But...

What was the year that you were caught without your pass? Do you remember?

That was after World War Two was over that would have been in '46 I guess. The people who watched over the Asheville Watershed had a little cabin up there down below the road and had rented a telephone from their office in Asheville. The warden arrested me and marched me up to where my car was parked near the gate because there was a blowdown shortly after the gate. So I knew that they had a phone in that cabin and I convinced him that the best thing to do was to go to their telephone and call their office in Asheville and see if they wouldn't let me go or whatever. And we did and I talked to the superintendent of the Asheville watershed and asked him if he wouldn't call Sam Weems the parkway superintendent at Roanoke and explain to him why I was under arrest. And he finally did. You didn't know Sam Weems but he was a hundred percent for the parkway and something like that he didn't like. So he talked to their superintendent and they wound up wishing they hadn't arrested me in the first place. And we never had to use passes again. Weems pointed out to that man, can't think of his name, that we had a deed for that land and we didn't need passes. But he was all right. He thought he was doing his job and he kind of enjoyed arresting people, I think.

What motivated you to go into the profession of landscape architecture?

Well I don't know. I know that was while I was in school in Gainesville, I worked a couple of summers for a nursery at Winter Garden, But I was already, I don't know that there was any especially compelling, If there was anybody, I guess it would have been an uncle of mine in New York State.

Where in New York?

At Owego, a town where I was born, or the nearest town. But he was in school, I guess he was a school supervisor of some sort. He was a Cornell man, too. Anyway, he had always liked the outdoors. It was very nice country where the farm was there, very much like this area here.

Owego is near the Pennsylvania border in the southeast part of the state.

That's where my grandfather's farm was. I guess that he had as much to do about that as anybody did. Although I know he used to remark highway construction, he would remark about how they butchered the landscape. That may have had a little bit, I don't know that the prospects of a job with the Park Service was much of a factor because there weren't jobs with anybody at that time. I graduated in '31 and Roosevelt was elected in '32 and he was trying to get things fired up. Anyway that was sort of a bad time for people who wanted to work. There just weren't any jobs.

When you came to the parkway, in 1938 you said, what were your responsibilities at that time? Were you a project landscape architect, were you still a field person?

Yes, I was. I worked almost entirely in the field. I worked quite a bit on making land use maps. We started making them about that time. I would do the fieldwork while the weather was good. And in the wintertime when the weather was bad I would make the final drawings here at home or if we had an office, there.

Were you living in Boone at the time?

No I lived first in Galax, Virginia. I was supposed to be in what we call landscape development, in North Carolina. But I lived in Virginia because we couldn't find a place in North Carolina. We lived briefly in Sparta. And Sparta isn't a very big town now and at that time it wasn't that big. We were there, I guess, a month or so and still couldn't find a place that we could rent. We had sort of an apartment for awhile. We would go to Galax on Saturdays to buy groceries because the grocery store in Sparta didn't have any fresh vegetables. Everyone had a garden and the grocery store couldn't sell vegetables. Anyhow so we would go to the grocery store in Galax Saturdays. And we were there one day and Jesse had a migraine headache. And I inquired of someone if there a doctor in town who had night office hours. They told us one and we went to him. We were asking everyone we saw then if they knew of a house for rent or an apartment. When we asked him he said "Yes I do. I've got one. It will be available next week. But I'll tell you right now if you give noisy parties or drink liquor don't bother to look at it because that's why its going to be vacant next week." So we looked at it and rented it. We lived there for all the time we were in Galax, about two years.

And I got bold enough then just to notify the people in the office that my address wasn't Sparta anymore, it would be Galax, Virginia. It was interesting. The parkway then, what was built then, was at the state line which was as close to Galax as it was to Sparta. So I could go out and get on the parkway and go to where ever I was going.

At that time the Bureau of Public Roads, of course, we had an arrangement with the Bureau of Public Roads for them to design the construction and engineering. help let the contracts and supervise the construction work. And they had what they called a landscape crew and they had a landscape architect. I never met him but once and I don't remember his name. But he worked out of Washington and he'd come whenever he wanted to and meet with the crew and that they had working in landscape development. Mostly planting bushes in places that needed it. I had only one time that I was ever able to contact him. Soon then, as soon I got there, they planned to phase out. They never did

anymore landscape work as such. But they did have a crew there. It was an interesting thing. The foreman of that crew was a fellow named Lisle (sp) He wound up being superintendent of the parkway and died shortly after he retired.. (sp) He wound up being superintendent of the parkway and died shortly after he retired. But he was a good man and had a charming personality and did a good job.

I am interested that the Bureau of Public Roads did landscape work, on the parkway, you said. Would the design have been done by the Park Service?

The first contract that was let was with Nello Teer who was a great big contractor. At that time the first construction plans for instance in a cut, they just went up to the top of the cut. Now we have them rounded at the top. And then we realized that that old way wasn't what we wanted. Our newer contracts all had rounding at the tops and bottoms of the slopes. That principally was what their landscape crew was doing. They would round off the top and then they bought shrubbery from nurseries around and about. They took care of that. Course they were using park service money. We paid for all of it. Their landscape architect that's mostly what he did, hunt up the nurseries that had rhododendron or laurel. That's mostly what we planted. He didn't stake it out exactly. Granny Lisle, (sp) said he would take a handful of stones and throw them like that and say, "Plant a bush," wherever one landed. His idea was to get a very informal arrangement and it worked pretty well.

Which year was that?

That was when I first came here. That was going on right then. They didn't do a whole lot of work. They didn't last very long; they didn't work at it very long. But they had some good men; they were all local men that knew how to work. Most of the local people through the mountains if you tell them you want to take that bush and plant it here why he knows how to dig a hole and will plant it probably so that it will do all right. Now the CCC boys you had to train them how to plant the plants. With them we would put a stake where we wanted plants planted. Malcolm Bird figured that out. We would color code the top of the stakes; green for one bush and different colors for the type of shrubbery and then bands for the sizes. You could plant great big ones or little small ones by just driving a stake there. I would take an armful of stakes and my hatchet and I'd drive stakes and then they would plant them.

How did you determine where to plant the plants and which plants? The whole design component how was that figured out?

I'd have to pull that out of my head right then. What you would do usually, If it was on a cut slope you'd look at what was up above there. Mostly, with shrubbery. Trees, well, we'd look at trees, too but stake them separately from the shrubbery. And if it was mostly laurel we'd use laurel there. If it was pink rhododendron, we'd use that, whatever and pick up the general arrangement up above and bring that down over the cut, enough to get away from the sharp line of the top of the cut. Of course, we couldn't, on these long high cuts, we couldn't do it all the way down to the road. It just would take more plant material than we could buy. But we'd break that line at the top of the cut, first by rounding it with grading and then by whatever planting and we'd thin out the planting as we came down enough to... But that was the idea. With trees we'd usually collect them. We rarely could find the tree that we wanted from a nurseryman. Most of the local nurserymen are growing laurel and azaleas. But we'd collect trees, hardly ever one more than four inches diameter. When you plant them on the slopes it's a lot easier if you can

find one on a slope to dig. Because It's hard to fit one into the hole otherwise. And that's the way it would go.

We could see right of the bat that there was going to be too much for us to ever do what we would like to have eventually. So we'd usually wind up having to start it and break that hard line. On the fills we had a similar problem. We'd try to bring whatever was down there up the slope enough to break the fill line. Then when we came to a view area the main thing there was to enhance the view with planting or framing or whatever appeared necessary. At that time we did a good bit of work before we made the plans. So in effect we were making the plans, planting the plans as we went.

How soon would the plants go in after the cut had been made? Construction occurred and then how soon would you follow with the plants?

We tried not to we didn't interfere with the construction. If we had more than one project going we'd work on one in an area where they had finished. We never, tried never to get in the way of a contractor. If we could not plant in a section until he had moved on, we would rather do that. Of course, you know how the sections go, one and two, a,b,c and like that.

And so you were working in about ten-mile sections and would try to wait until the contractor had moved on, if possible then begin your planting work.

The length of the sections was usually from gap to gap. They would vary, as I recall they were never less than eight miles. Ten miles, we would kind of favor that, or close to ten miles. A very few of them are fifteen miles. I think we had one sixteen miles. But that gets to be quite a large figure for a contractor to bid, longer of course. But a section in the neighborhood of ten miles was big enough to interest the big contractors but still something that wasn't so big that it was just going to go on and on and on. We liked the contractor to get out of the way before we did what we could do and what we did do.

In the planting plans, what were your aims? Were you aiming for diversity of plant material?

There's a general rule in the whole park service that any planting that you do you use plants that are indigenous to the area, I think is the expression they use. But you use local plants. If adjoining planting in the shrubbery area is a mixture we tried to pretty well imitate it. We never wanted a definite change where the top of the cut used to be. We would try to get away from that.

What do you think now about the evolution of the landscape, the plant growth of the parkway? Some things are dying out, such as the dogwoods, and some of the other species are having problems.

Now I've been retired for 25 years but so far as I know we haven't gotten into the replacement of something that died naturally. Now we have a certain amount of loss of plants that we plant. We tried to hold that to a minimum. In some areas dogwood was the feature in the woods and we would try to bring that onto the slope if we could. But we had some trouble with collected dogwood. You have to be careful. You can't get a very large dogwood and move it with any great degree of success, regularly. Little fellows, little seedlings you can pick up pretty easily and give them time and they will get to be larger ones. But of course costs always enters in to planting areas like that and the

local nurserymen, they are in business to make some money. And we were never able to get reduced prices or anything like that.

What were your main goals when you were doing the design work for the parkway, or the goals that were expressed by...

You mean the land use maps?

The parkway, in general, what do you think the main ambitions and goals were?

As far as plant material is concerned?

Plants and some of the details, the details and location of the road...

If we could, we wanted the parkway to fit the landscape so that it didn't look like an intrusion, it looked like a natural something that we built the road on. That's not always easy in the mountains. As far as plant material, we used the same if it were what we would consider weed plants ordinarily. If that's all that was there that's what we would plant because we followed nature's choice of what would do well there.

I've been reading through the plant spec's of 1939 and it seems like some of the cleaning out of woods specifications were adjusted to take into consideration leaving some dead wood for den habitat for some animals, do you know anything about that?

We did not have a naturalist on the parkway for some time. But when we did we heard quite a lot about that sort of thing. But there was never any question that a dead tree that might fall across the parkway, we cut it and moved it out before it did fall across the parkway. That's more of a safety measure than anything else. Other than that what we wanted was a natural look. Of course the construction area itself was hardly ever so wide that it would have much influence on leaving dead timber because we just didn't own it far enough. Because like a big old dead chestnut like we had thousands of at one time, we would leave the picturesque ones and they would melt into the general scenery all right. And a lot of the big old chestnuts were quite picturesque and some of the them were sound enough and sturdy enough that you could pretty well tell that they would stand for a long time. Other than chestnut, most other dead trees we would take down before they fell from natural causes. For one thing if they fell into a planting that we had made they would do a lot of damage to that. And dead trees are a hazard along a roadway anywhere and especially in the wintertime when they can load up with ice and come down.

What kind of consideration was given to the areas where you had drainage or erosion problems?

If there was severe erosion, so far as I know we never could include erosion control in the construction contract other than what was caused by the construction. But in some areas where we had significant amounts of erosion, for instance over in Price park there was quite a large area there that for some reason was just riddled with gullies, some of them fifteen or twenty feet deep. And it wasn't that steep but it was just an accumulation of water that would wind up cutting a little more and a little more. I remember that over there I rented a bulldozer for several weeks. And he worked there and he filled in what he could with the material. And instead of just a bunch of gullies it's a smoother thing now. And he got it smooth enough so that we could seed it and we seeded it to grass.

Now we would like for natural woods and shrubs to come in those places. But it takes time for that and we could stabilize it with grass and then hope for a little natural, a few trees. Trees will come from quite a ways. The squirrels bring acorns and plant them around, that sort of thing. We didn't have too many areas like that. Because in the mountains there is not a whole lot of natural erosion in a natural condition. Where there is erosion there is usually a stream in the bottom of it, from a spring or two.

And then too, things that were ugly and were not gonna help the view any, they had first priority when it came to working outside of the construction zone. For along time we tried to pretty well limit all that we did within the construction zone. But we'd sneak over if we were nearly done with something, why we'd stretch it a little. And Ed Abbuehl was understanding about things like that. And he, I guess he understood me, too. Because he would drop remarks occasionally, like "Gee if we could ever get something growing here, it would be great wouldn't it?" and say no more about it. I know one or two places where Ed would remark "Gosh we ought to have a little pulpit here in this view."

And two or three places we have one now.

What is a pulpit?

A pulpit is something that we would build out for a visitor to stand and look at the view.

Would that be at the overlook?

Usually it's connected with an overlook because that's where most of your foot traffic is going to come from. And people, for instance, south of here at Chestoa View, that's down the other side of Linville a few miles, and you drive up into an overlook and then there's a trail there and you can see that right down below you can see there's a little circular something and the trail to it. If you go down there there's some steps and It's no bigger than the end of this room, built up with a wall oh that high around it. A few years ago the papers were full of it, some guy pushed his girlfriend off and killed her. We got a lot of publicity from that.

One of the uses that wasn't anticipated. (laughs)

Right.

Did the parkway build any stone amphitheaters in their parks or campsites?

Most of our amphitheaters are just seats and a stage. All that I can recall were picked because of the shape of the location.

Would any stone work have gone into them?

I don't know of any. There is a little stone work here and there. Stonework is pretty expensive. We had to watch it. Along most of the trails, occasionally you need some wall just to hold the trail up. That's just part of trail construction. Around the overlooks we tried to include in the construction of the overlook, if any masonry was needed. We usually built the curb, stone curbing in the overlooks and in the campgrounds and in the picnic grounds if it was needed we did that.

What was the policy related to drainage and water flow issues?

So far as water flow, any time we interrupted the natural flow we tried to get it back into its natural course. Around camp grounds and picnic grounds where we wanted to get the water out of the use area we would most always try to put it back in the water course that it would have been in any way. At least any that I had anything to do with that's the way we did it.

I've noticed stone structures that take the water under the road.

What you saw are what we call head walls at each end of a pipe. The Bureau of Roads preferred a concrete headwall because they were simple and the contractor could figure them easily. We preferred a stone headwall. So we have some of each along the parkway. A few of the concrete ones that you could see too much, we thought, we would cap it with stone so that a visitor wouldn't notice it.

As the Park Service has evolved it has more ecological purpose. Did that come into play during your time with the parkway

When I went to Gatlinburg, see, the Park Service wasn't but sixteen years old. They had few written down hard and fast policies. They had some general ones, like you didn't cut anything you didn't need to cut and like that. As time went along and we did more and more development we began to notice things like that more than we did in the early days. I don't know that we have policy that covers everything now. I guess discretion is what we are supposed to use.

Were there any policies that you are aware of that might have changed what you did in the design work due to attention to some endangered species?

If we ran into anything of an endangered type if it's possible, why we saved it even if it's undesirable. We used to have a lot of jokes about poison ivy and things like that. But I have seen people, not right on the parkway but when we lived in Asheville, I remember there was one place up toward the Craggies where there was A nice tree or two in a flat place completely bedded with poison ivy. And I've seen people picnicking right in the middle of it.

I got bawled out one time. I stopped and told the people. That was poison ivy and they had children with them. The guy said "You tend to your work and I'll tend to us". I thanked him and went on .

But children have no business with poison ivy. And I'd never hesitate to eradicate it out of a picnic ground or campground. It's not needed there. And rattlesnakes fall into the same category. The naturalists don't agree with me on that. Most naturalists will tell you that the rattlesnakes were here before we were and they should have priority. And if there are rattlesnakes around, why its all right to warn people but don't kill the rattle snake.

And I could never agree with them, never did. But it's a silly thing, I think, to have anything that could be dangerous to children, especially children running around loose. And most people when they are picnicking, let their kids run.

Can you tell me a little bit about the design process? You mentioned the other night on the telephone that much of your time was spent walking the parkway and then drawing.

Well the design process, really, at first, You have a location to begin with . You want to go from here to there and if it s something like the parkway it's a matter of miles. And then you fix your starting point and your terminus and then you have to decide, if there is a choice, if you want to follow one ridge or a different ridge. And you make a general decision, as much as you can. But then as you go along the ridge and the parkway the Blue Ridge is supposed to follow the Blue Ridge. As you go along the ridge, you go really from gap to gap because that's where you can go to the other side of the hill if you want to without a lot of trouble and expense, is in the gaps. And the only way to decide which side of the hill is the best one from this gap to that gap is for someone to walk through there and make a tentative location. And you do that from gap to gap all along. After the parkway was fairly well located and the Tennessee argument was settled. There was no doubt that the parkway was going to go from this spot to that spot, usually gaps. Then it's just a matter of when you had the money for the construction. Of course, the states were supposed to, and did, furnish the right of way. Each state agreed that they would furnish up to a hundred and twenty five acres to the mile on our location. So that's the first rushing thing that you have is to get enough of a location established so that the state can begin with buying the right of way. After you definitely have decided that you are going from this gap to that gap, then the Bureau of Roads would send a man in to stake we called it a preliminary line, a "p" line. It was a rough line, not hard and fast.

After the general location was definitely established we d send in a Bureau of Roads engineer who would stake out the "p" line. Those people had a lot to do with the location of the parkway. We had one that I remember in particular, was an older man, his name was Allfather. The people that knew him called him Allpop. He was a good bit older than I was and he had quite a potbelly. He'd get some of the local men, you know and say "I'm going stake out a section here about ten miles." He'd hire them to work by the day. They'd look at him and think "That old boy isn't going to work anyone to death." Well, Allpop would walk you to death. He'd just walk all day, through the brush, steadily. He had that reputation with all of the local men that he could hire. I've heard them say, "Allpop tried to hire me again the other day just to walk out a little line with him. I told him I was busy."

Was he a civil engineer?

He was a civil engineer and a good one and sympathetic to the parkway. Abbott and Abbuehl had talked to him and he knew how they felt about things. We rarely had to change one of his preliminary lines. Of course, he had a map that he could look at. And he knew that he had ten miles to go definitely on this side of the ridge. Then he would look at the construction. His main concern was if the construction was impossible or expensive or easy. And everything else being equal he'd take the easiest, cheapest way. But sometimes he would take, for instance, you're not familiar with Doughton Park?. There's a long inside curve just this side of Doughton Park And it was a vertical cliff there, is about all it was. But it made kind of a feature. And that's where the parkway is. But they had to shoot it out, just a notch out of the solid rock around that vertical curve.

And it doesn't have any thing to do with what you want I guess, but frequently they'd send a new landscape architect to me and he'd work with me for a while. I'd see if I could get him going good. Anyway, this fellow, he was kind of stubborn. The parkway was graded up around through there and graveled but not paved. And it was wintertime. We'd go up there with a little snow or ice on the road. I mentioned to him, "Now there is just enough super elevation here so that if we stop, we'll gradually slide right on overboard. So we need to go just fast enough for centrifugal force to hold us up there." "Yeah, yeah." He understood that good.

Next time... it wasn't too long before we gave him a car for him to drive. And he was going along and I was following him. I guess we were coming in one night. There he went up around this curve, going up on a curve to the left and all of a sudden the door of his car opened and swung all the way out and I could see he was holding that door open. When we got around on up above, I blew him down with my horn. He stopped and I said "What in the world did you come around there holding the door of your car open?" And he said "Well, if we started, if I started to slide in that car I'm gonna jump out." And I said "Well, where are you going to jump to?" And he studied about it for a while and he never answered.

So just being a landscape architect don't make you smart about things like that. And some of the brand new ones, you did need to tell them some things that you wouldn't think you ought to. You'd tell them just to make sure that they knew it. We got some odd balls from time to time and some good men, some real good men. But every once in a while something like that would happen.

It would spice things up a little bit. It sounds like you had a good working relationship with the Bureau of Public Roads people.

We had problems from time to time. But usually I would try to handle the problem before it got serious, if you know what I mean. Of course, they had inspectors there that were engineers. Most of them were graduate engineers, had civil engineering degrees and knew a lot about construction but nothing about park service ideas. We tried to tell them in advance what our main consideration would be as construction went on. And on every section some landscape architect was supposed to be there to work with the contractor. Actually you worked with the bureau engineers. And If something is going on that you can't have you don't run up to the contractor and say "Whoa". You go to the fellow that's giving the contractor his orders, which was one of these Bureau boys. And we never had any real serious trouble. We quite often... they would want to do things that we wouldn't want to.

Right out here, the first summer that I worked in this area...there was no place to rent or sell in the area and I boarded between about halfway between here and Deep Gap. And there was a house that you could see it from where I boarded. But at some time the house was torn down. It was a big old, nice old two-story house but it was right close to the parkway.

The fellow who owned it had planted a row of sugar maple trees. By that time they were three or four feet, (*caliper?*) beautiful trees. They were in a row and we would never plant things, that many in a row. But anyhow, I noticed they were just off from the construction line. The toe of the fill was about ten or fifteen feet before you got to them. And the terms of the contract, the contractor. . any work that he does outside of the construction zone has to be negotiated with the contractor as it takes a special price. Well, the engineer on the job, who was in charge of the contractor directly, decided that he didn't like that row of maple trees. And he knew that we didn't, in general, go for trees in a row like that. So while the contractor was clearing the right of way and had a crew cutting trees, he decided that he was gonna break up that row of those big maple trees. And he was gonna do it by cutting half of them down.

I came along just as the saw crew had the first tree, they were about half way through it...too far to save the tree. So I stopped. Of course, I knew the fellows. We talked a little bit about why they were cutting that tree. Mr. Wise had told them to cut it. He wanted it cut and he'd marked the rest of them out. I said "You know this is outside of

the construction zone and, actually, you boys ought not to be doing anything out here if you want to get your pay."

Well, they were aware of that.

And so I said, "Well I'd appreciate it if you don't cut any more because I'm going to hunt up Mr. Wise and talk to him about this." And so I did.

And I said "How come you're cutting down all those maple trees down there, just outside of the construction zone?"

"Well," he said, "They don't look like they ought to."

I said, "You're trying to talk like a landscape architect. Now you're an engineer, come on, why are you cutting them?"

He said, "I just don't like trees in a row either."

And I said "Well, look, they're beautiful trees and in the fall those trees can be a feature.

And we can plant some more small sugar maples around to make it a great big group instead of just a row. And he said "Yeah we could. I hadn't thought of that." And so we had no more trouble there. He said "Well, we won't cut any more of them."

Then on the final inspection of that road. Of course, they cleaned around where the tree was. The contractor was in his car. And then this man was in the front seat with him.

And the superintendent was in the back seat and Ed Abbuehl and then me. Of course I figured I was just along for the ride. But anyhow, that was Sam Weems. Now Sam Weems, he was for the parkway. Well, we were coming down where you got a view of those trees. And it wasn't fall and they weren't in color and their leaves were all gone.

But any way we were going down there and Weems said He said "Wait minute, Whoa, whoa, stop." And we stopped and he said, "There used to be six trees there."

Now you wouldn't believe it but there did use to be six. And he turned around to me and said, "Who cut that tree?"

And I said, "Well, that's a long story."

"We've got time," he said.

And the guy, Wise, that got it cut, was sitting right there. And he was just sitting there not listening to anything.

I said, "Well, Frank can explain it to you, maybe better than I "

And Weems looked at him.

And Frank, he finally said, "Well I knew that the Park Service didn't like trees in a row.

And I was just gonna help you all out a little."

And then his boss, he was in the car too, his boss looked at him and said

"Well I never heard anything about that. That's outside of the construction zone there. "

So anyhow I said, "Well, the tree's gone. We can't put it back. Maybe we can agree that we won't cut anymore."

And Weems said, "We certainly will!"

So no more was said and we went on.

Now Sam Weems, he would remember things like that. I remember a car wrecked down the parkway somewhere and there were two little white pine trees, about six or eight feet tall. The guy went off on a little curve and just only about that much fill and those little pine trees. He went off and rolled over and broke off one of those trees. When Weems came by the wreck had been taken out and the trees had been taken away, too.

He met me first and asked me, "What about up there at such and such a place? There used to be two little white pine trees there. Now one of them is gone."

He said "And the ground's all skinned up. Looks like a car wrecked."

I said, "It did and ran over that tree."

"And ruined it!" he said.

I said, "Yeah, broke it off."

He said, "I always did like those two little trees there." (laughs)

He had a great memory for the specific details.

He traveled the parkway and anything that you were doing that was questionable you'd better keep an eye open because the superintendent might come along any minute of any day.

Was he a landscape architect?

Pardon?

Was Sam Weems a landscape architect?

No, he was an engineer. He was a Georgia Tech engineer, and a good one. Well when we got to where we had a parkway engineer, they always said he was a hard man to work for. Because he was as good an engineer I guess himself, as we had ever. But Weems was for the parkway. He started out buying right of way for the state, one of the states. And then he saw that this was something he was going to be interested in. And he was a good superintendent.

But up until World War Two Stan Abbot was the resident landscape architect and acting superintendent. And Weems got to be appointed as his assistant superintendent but But after World War Two when everyone came back from the war Abbott was told, "Well, it's too much now for one man to do both jobs. You can have either job that you want but not both of them any more."

So Abbott said "Well, I'm a landscape architect I'll stay with that."

So then they made Weems superintendent. And then Ed Abbuehl took over the landscape part. They sent, right off the bat, they sent Abbott to Williamsburg. Abbott had a way with people. He could sell his point. That Colonial Parkway, if you're familiar with it, that Jamestown Parkway goes from Jamestown to Yorktown. Where it tunneled under part of Jamestown they were having trouble. They were about to put tunnel portals, rockwork on the outside. The then superintendent there wanted stone. The Rockefellers wanted to use Jamestown brick, which was an odd size brick that many of the houses there were built out of. And they were having one newly made that we called, that everyone called the Jamestown Brick size. That's what they wanted to use for that tunnel portal. . And it got to the point where the superintendent was about ready to fight with them over it. And so they transferred him and sent Stan Abbott over there. I guess they told him of the trouble they were having.

So when he showed up, the way I heard the story, some of the Roosevelt, (Rockefeller?) people contacted him right away and said "We want to go ahead with the headwall on this tunnel now. And we'll not beat around the bush, we want to make it out of brick and the other superintendent was holding out for stone and insisted it ought to be stone. Now what do you think about it?"

And Stan Abbott had already looked the place over and knew the situation and he said, "Well I can't think of anything better than your Jamestown brick for that." (laughs)
That was Stan Abbott.

He started off on a good footing with his new job.

He had no more trouble with that there at all. And it was building in a big hassle. But that's the way he was. He understood people. And actually, the Jamestown brick do tie in with the rest of the brickwork, some of it within sight of there. And the stone would actually be a little bit foreign there. I wonder off every once in a while...

Your wanderings are good, too. What percentage of the decisions related to the design were made in the field and what percentage were made in the office?

Well, I had never thought of it percentage wise. I have always been sort of, well, not proud, but anyway I always felt like I never did make a decision that I felt was important that was reversed by the powers that be. But I'd hate to have to say how often that occurred, not very often. Most of the final decisions were made on the ground because that's where the problem is. Abbott and Abbuehl, both, if I had something that I was concerned about and didn't know what they would probably want, I called. Of course, they approved of that. Usually one or both of them would be familiar with that situation where it was. Once or twice they said, "Well, we need to look at that. We'll be out there shortly." Or they'd say, f right of the bat, whatever they wanted, or say, "Well, whatever you think is best."

But they were reasonable people. And they were the best to work for.

Yeah, you mentioned that you enjoyed working with them. Ted, when did you last get up and visit the parkway?

I don't know. See, neither of us can drive anymore. I was trying to think.

Jesse: It was when Esther sp? and DT sp? were here. My brother and his wife and we drove up to Cumberland knob. And he's been dead five years so it was before that..

Okay, sometime in the nineties, you went up to Cumberland Knob?

Jesse: Yes, We both have poor vision and Ted hasn't driven now for six years. Its been almost four since I've driven.

Ted: We used to go quite often. When we first moved here from Asheville, we used to go back down there every once in a while. She could shop better down there than she could here and we had friends there that wed like . And occasionally, It would take a little longer to go the parkway than the state road but wed get to ride over some of it. Someone told me just within the last day or two that he'd wanted to get us and ride on the parkway. I don't remember.. but that's what it takes now is someone else. You hate to tell people, "Hey, let's you take us out to the parkway and just ride around awhile." That's kind of overdoing it a little bit.

Well I'm sure they wouldn't have a better tour guide anywhere, Ted.

I enjoyed the parkway and I got to know a good bit of it. And the last, as I said one time, I was supposed to work just in North Carolina. And then people would leave and one thing and another and I'd have to go a little farther up into Virginia. And the last several years I worked I had to cover the whole thing from Cherokee to the other end. Of course, by then we had radios in all of our cars. That's an advantage and a nuisance, too. But I would be able to put it off long enough so that I maybe could do something else on the same trip and not too bad.

Now if they just wanted me in Bluff Park or Doughton Park, (it started out as Bluff park), why I could run up there any day. And the same way if they just wanted me down this way, somewhere between here and Asheville. And by then we had pretty competent maintenance crews most everywhere. And those fellows, they were local men. They were pretty proud of what they were doing. And they worked well at it and did well.

Now we had at one time. Well, I never had any real trouble. But you know the parkway goes through the Indian Reservation and Sam Weems negotiated with those Indians for I don't know how long. And they didn't want to give up a right of way through their reservation, and they didn't have to. And Weems would go down and as he would say, "Butter up the Indians", talk to the chief and he finally convinced the chief that it would be a good thing for him to do. And so he agreed and we got the right of way.

And then some of our own maintenance people were a little bit on the stupid side. Because they...I had gone down there one time, I remember, at Water Rock Knob we had a road up to a big parking area and then they wanted a trail from there up to the top. And I had to go down there and locate it. They had an Indian, a young Indian man working in maintenance in that area near Soco Gap, was their headquarters. And they gave him to me to help flag that trail. And he was a good one. He says, "What time do you want to start in the morning?" when I first contacted him. I said "Well, I'm in a motel over here in Waynesville I can be there most anytime. What time do you usually go to work?" He said, "I usually get there by seven." I said, "Well I'll meet you at seven o'clock at the parking area."

I got there next morning at seven and he was sitting in his car waiting. It was one of those mornings when there was a heavy dew. And the weeds were higher than your head where we had to start out with the trail. I said "Cody", his name was Cody Lambert. Lambert is one of the tribes. I said, "Cody, we'll get wet here." He said, "Won't hurt." So we started off through there and we were wringing wet before we went a hundred yards. And that's the way he was. He was smart and he would do anything you wanted. He was just a good man. I heard before long that they were having a little trouble down there. After we finished what we were doing, to back up a little bit, I recommended when they needed a good foreman down there that they consider him because he was the sort that would be a good man. And down there, anyway, some of our local men were having trouble with some of the Indian men down there. They had two or three other Indians that worked down there. Anyway it got to me. And I didn't have anything to do with it. But I did express that my view was that when we entered the Indian reservation we ought to use Indian labor down there in maintenance and if we did I didn't think we'd have any trouble. And that's what they did. And the last I heard, Cody was the foreman of the maintenance crew in the reservation there. And I know we went down that way one time for some reason or another, once in a while Jesse would ride with me if I had to go and we passed his crew. They were eating lunch, or had been eating lunch, and the truck was parked and behind it there were three or four Indians there lying down behind the truck with their head on the stone curb, resting after eating their lunch. (laughs)

That's a hard pillow.

That tickled me. You'd think that if they wanted to rest there was grass over there. They lay down on the gravel with their head on a stone curb. And Cody was with them. He wasn't lying down he was working on his time business in the cab of the truck.

The Indians, I think, from what I've seen... Now I mostly just knew Cody but I talked with some of the others, and I think and I don't know whether its because some of them

had jobs there now. But I think the Indians like the parkway through there. Because, well, now they have the casino and they're all getting rich, I guess, from that. But at that time there were gift shops there that the traffic on the parkway was helping out a lot in their gift shops. I guess now their casinos are benefiting from the parkway, too.

Did the parkway have separate facilities for the different races? I read somewhere that it did.

You mean in the restrooms?

Restrooms, restaurants, what not.

Not that I know of. I never heard of it.

Not in the North Carolina section?

No, or in the Virginia section. Now from time to time we might have a truck delivering gasoline that had a driver that was black or something else. And he might have mentioned that there were places where he didn't use the restroom or something like that. But there's never been any regulation that way.

Now I do know that Weems was from Georgia and blacks were not blacks to him. But he didn't make a big thing out of it.

What was your reaction when you went up on your last visit to the parkway to the way it looked?

Well it looked pretty good but maybe not as good as I thought it ought to look. A big part of the way the parkway looks comes from mowing the road shoulders and from mowing out the little bays that are supposed to be mowed on the master plan. And sometimes, mowing machines are pretty expensive. And we wear them out pretty fast on the parkway. The driver gets more money than a common laborer does and should. But usually, for one reason or another, there will be little areas that just like that have not been mowed recently and don't look as good as you'd like them to. I don't remember seeing any major blunders that have been made somewhere.

Of course, by the time I retired I don't think that all the Land Use Maps were complete. Because working on land use maps used to be something that no one liked to do. And it is tedious. For me, I can't do it out of my car. I know several people that claimed that they could and would try to do it. But I have to do it from walking along. With... We made boards, we'd take plywood cut a piece big enough so we could fold a plan sheet one time and then use clothes pins and clip it down around that. And you can hold it. Its light to carry but still. You can do work on it with pencil. I always had that in my car and would work a little bit as I had time. And then in the wintertime when the maintenance crews weren't doing anything except pushing snow or shoveling snow, I would try to do all the land use planning that I could. It worked all right that way because the plant material that I was primarily interested in was evergreen anyway. And the trees I could recognize. We were supposed to, on the land use maps, if there was a 48 inch White Oak we were supposed to mark that we wanted to be sure that it was not cut for whatever reason. We'd mark it as a 'so big white oak, specimen'. And We'd mark it on the plan and it would be protected if necessary, that way. . And other things like that wed make notes about the land use.

Now Malcolm Bird first started out working on land use maps. And Malcolm would make a detailed list of plant material that he wanted planted. Now if you find a land use map, and they're probably using the same ones because it costs money to remake them. And you can print the old ones pretty cheap. There are probably quite a few land use maps still around that Malcolm Bird made or I made. Because he was in charge of that to begin with but he soon left.

But I continued that until one day I happened to think about it and I asked Ed Abbuehl if it was necessary for us to say so many of this and so many of that and so many others. Now I agreed with spotting a special tree that you want or like that. "But the people that were going to be doing the work", I said, "do they not have common sense enough and know enough about what we want anyway that if we just say extend the shrubbery to this line here and then indicate a shrubbery line? Why, wouldn't that be better than to say why in this area plant fourteen blueberries and ninety two whatever?" And Ed studied a while and he said. "Well, yes and if they don't, we ought to be able to find someone that will be interested enough and know enough to do that."

So all of the later land use maps that I made would have a note maybe to say extend shrubbery line as shown or sometimes after so long a time, its automatic if you indicate the shrubbery line which is different from the tree line why your foreman will know what you mean and what you need to use. And besides that if he's going to have to collect it he don't want to have to help carry it any farther than is necessary. And in a few rare cases we did have our own people that would collect stuff from the area that they were supposed to extend it. (laughs)... but not much.

So generally if they were collecting it would be pretty close to the area where they were planting?

If it were possible, if the material was there and if we could spare it without changing the looks of it. Usually they were going to have to carry it so they would favor the small sizes that were underneath the larger things anyway. In general that would be the way that it was done. And as long as they collected in the area they can't go wrong. They might get the proportion out of whack a little bit but as long as it comes from within sight of there its going to be the kind of material that they ought to put there.

Did they collect within the parkway bounds? Were they able to find enough plant material?

We collected from our own property wherever we could as long as it wouldn't interfere with what we were trying to keep. Like the other side of the hill, something like that we would collect. We didn't collect many trees. Trees large enough to show as tree right away in your planting, they are heavy and they get to be a real problem moving them in there. You can dig a nursery grown tree with a lot smaller ball of dirt than you can dig one that you collect. That gets to be a factor. You can get nursery grown trees up to three or four inches that say four men two on each side, I had them make things that they call, what is that that you carry crippled people on?

A gurney?

Yeah, and we had that. It would be with a pole and maybe just a canvas in between and four men could get that. And four men can carry a pretty good size ball. If they use good judgement and plant the farthest away one so they won't have to walk through those they've already planted care? But you can usually get in local nurseries....a lot of the

local nurseries won't have a thing except rhododendron and maybe azalea. And they ship a lot of it. And that's what ships best and what they sell the most of. But a few of them have discovered that they can collect some little seedling trees and line them out and let them grow a few years. There are people around town that need a tree. They do have a market for them.

When the work was being done, in terms of the construction, installation of the plants, etc. how many people would be in a crew typically for a section?

Well it mostly depends on how many good men you can find. The maintenance foremen were always on the look out for good men and most of the time they would have one or two that weren't worth much. Usually they'd lay off several men through the winter. They'd always lay off the worst ones that they had. Come spring if they were hiring men back again, they'd hire back any good ones that they had had to furlough. If the no good ones came wanting their job back they'd tell them, "Well we just can't use you this time." And they'd finally get the message. But people are people and there are people that work hard and people that don't work hard.

Would you have a standard crew size then?

No It somewhat would depend on what we had to do. A lot of the sections, there's still basic work that needs doing or a lot of routine work that they never get caught up with. Like cleaning ditch lines. You know you're going to have to do that. And you need several men to do that. Your small crew of best men that you keep through the winter you try to plan that as far ahead of time as you can. That is the foreman does. The foremen usually aren't bashful about dropping off a man that isn't much good because it reflects on him if he don't get the work done. And he knows it.

Would it be the foreman then who was the one reading the plan or would a landscape architect be out in the field too? The land use maps or the development plans?

During construction, well, we used to have a lot more men than we have now. And of course you depend on congress for the money every year and now our permanent staff is minimum. Then they can hire seasonal men and do, for the routine jobs. I don't know of any landscape architects or engineers that are hired on a seasonal basis. Usually the same one makes the plan and looks at it as they put it on the ground. Now they may be doing it differently now than they did when I was there.

I just wondered who was interpreting them. When you said you changed the procedure from spec'ing all those little plants to say 'extend the shrub bay here', or 'extend the shrub line', who would be responsible for interpreting that? Was it the foreman then?

On the land use maps theoretically there is enough information there so that the foreman, the full-time maintenance foreman, is supposed to be able to interpret land use maps. Now that don't mean that he can or does. But if they're interested we will help them., if they don't quite understand things. And you use the same symbols, if you're using symbols, over and over. If a person is interested.. we've always been able to get a maintenance crew with people that had experience in planting shrubbery for instance. Because this area of the state, that's one of the industries here. And there have been two or three pretty big outfits that collect shrubbery by the carload to ship north to sell to nurserymen. And there are men at every town along the parkway that have worked

collecting shrubbery. Some of them have worked for themselves. Some collect a truckload and then sell it to someone that does collect it.

Where were they collecting the plants?

Whoever is not looking, usually. (laughs) The Forest Service through here has a lot of land and the Forest Service is growing trees more than shrubbery. They will let people collect shrubbery. The closer you get to town the less the forest service will let people collect shrubbery on this land. And some of the state parks have let some collection be done. Usually for their own use. I guess the forest service is the largest landowner that we would collect from.

You mentioned two or three big nurseries in the area, do you remember the names?

Well, Wilcox,(sp) here for many years had a business of collecting.. is it botanicals they call it? Yeah, local plants, A large part of their market was sassafras bark and birch bark that went into cough medicine and whatever they knew it, from ginseng on down.. A lot of the local people got to where they could spot a plant that the collectors were buying as far as they could see it. And if no one was looking they would dig it up as they passed. That has been an important part of the economy of this area for many years. There were others besides Wilcox. I used to know several of them but I don't anymore. There used to be one that had an office on 221 down toward Marion there. And Gardens of the Blue Ridge over here . they were a big collector for a long time. But that wasn't them that was one of their competitors. I cant think of his name. Usually the plant collectors, their main office and activity was close to a railroad because most of these things had to be shipped by rail. Now Tweetsie?(sp) Of course had a connection to Southern over here and they'd ship it out on Tweetsie (sp) and then it would wind up going on up the country on the railroad. But those people that are collecting would usually collect small plants that one person could handle. .And they got to be pretty good at that because the nurserymen wouldn't pay for them if the ball was broken up too badly. And they got to where they could dig a good ball and they knew how to plant them. But through this area the Forest Service would let collectors collect small plants and sometimes some of the plants that they could tap and collect the sap...I was trying to think, different medicine. Cough medicine, a lot of cough medicine has natural plants or flavoring.

Tape ends

Excerpt from

**Telephone Interview with Ted Pease,
Landscape Architect of the Blue Ridge Parkway
192 Cherry Brook Lane
Boone, NC
828-264-3860**

October 22nd 2000

**Interviewed by Mary Myers, Asst. Professor
Department of Landscape Architecture
College of Design
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Raleigh, NC**

Can you tell me about your tenure with the Blue Ridge Parkway?

I worked on the Blue Ridge Parkway for 37 years, I was a landscape architect. The original group was all landscape architects, Abbuehl, Abbott and others. I came to the parkway in 1938. Prior to that I was in the Smokies for five years. On the Blue Ridge Parkway, I was primarily in North Carolina. I moved to Boone when the Cone and Price property(ies) were acquired. We had contracted to build the Blue Ridge Parkway across the properties and someone was needed full-time up there.

Stanley Abbott was the planning spirit of the parkway. He was chosen to head the Blue Ridge Parkway due to his parkway experience in New York. Abbott and Abbuehl were good friends. Abbuehl and Abbott were great people.

They were not paper designers, but got out and walked over it. They spent about a year mostly walking. Then they built up a staff because they had to be in the office more.

All of the parkway was walked over on foot by a landscape architect at some time or other. The parkway, in the beginning, its general location, was to connect the two national parks. Automatically it went through Virginia. Some groups thought it should swing into Tennessee as soon as it got into North Carolina. They had many discussion sessions. Eventually it was determined that the North Carolina route was best.

Which date (s) did you work on the parkway?

I worked on the parkway from 1938 – 1974. On my retirement, the last major contract, Grandfather Mountain had been awarded.

In what capacity did you work? What was your job title?

Landscape architect. All of the design people were landscape architects. Now the Bureau of Public Roads, after the location was settled, they took over engineering design so that contracts could be let.

What did the job entail?

Abbott and Abbuehl got tied up in office work. I had worked with Malcolm Bird in Smokies. Malcolm had known Abbott on Westchester Parkway. He asked to be moved to

parkway. Then I did. While a senior at the University of Florida, I took a civil service exam for landscape architects and was hired in the Smokies on temporary basis. I had to be rehired every six months. I went full time at the Blue Ridge Parkway after that. Malcolm left the Blue Ridge Parkway and eventually went into city planning, I heard.

I worked in field most of time. One landscape architect would be assigned to each contract as it was let. Their job was to protect what should not be destroyed by construction. The Bureau of Public Roads engineers staked out the road and had people on the job all the time, handled the contracting work. The contract with the Park Service which had inspection duties. We worked continuously with the Bureau.

As more and more work was completed, I worked with the maintenance people and made many many land use maps, showing forest land, views that should be preserved, extension of woods lines, etc, cutting bays. I did this in winter. In very bad weather I would work in the office on plans, made on linen, to be approved by Superintendent, then printed.

You had to be in the field to make the land use maps. We had large prints of each section of the parkway, maybe a dozen sheets, nothing but boundary, (right of way) and location of parkway within that boundary, including any drainage structures and large woods areas. We would take those maps into the field and a lightweight drawing board. I never felt I could do it without getting out and seeing it. I noted the tops of cuts, bottom of fills, any drainage, original woods line, add any more that was needed or areas that needed to be cleared out, and possibly decide that it should be used for agricultural purpose.

We wanted to preserve the mountain culture and appearance as much as we could. We would lease part of the right of way that was adjacent to existing farm, allow some (farmers) to cultivate, (or we would) lease a lot as pasture. We would control the use the farmer could make of it. This was put on the land use maps, this is why they were called land use maps.

I did all of this in field, in pencil. On snowy day I put this into ink on linen sheets for maintenance (people and) the rangers to use. It took a lot of time. I would park the car, walk ¼ mile up road, then walk down on other side, then (walk) beyond car. I did about ½ mile or more on both sides of road per day drawn on land use plan. I paced it off and scaled off on map. I drew a definite line where the views should begin and end. All of these details took time to figure out. You could do this, or do that, or maybe not do anything. We judged each foot of the parkway on foot, then would drive over it to see if this ought to be done. When all of the fieldwork was done, I would do the final draft indoors.

The only rule that I knew of was we were supposed to do it the way we thought best, as landscape architects. The final plans were reviewed by Abbott, (the superintendent), and Abbuehl. I was lucky, didn't have much trouble for the approval for my work. There were never better men to work with than Abbott and Abbuehl. They understood what you were doing.

We talked it over as much as we could, a section of parkway at a time.

What were the main features of the design?

A section might be farming, or semi developed, then you might have several miles of wilderness, then maybe an outstanding display of flowers, mountain laurel or rhododendron. We would sometimes clear out areas to emphasize laurel or azalea or rhododendron. I could not consider them riding by in the car. I had to do it on foot.

The land use maps were made after the construction was complete, the raw construction of the road, that was. In the early days, they did not include some things they did later, such as rounding the top of the cut to blend into the slope. Later on they did that.

Mr. Abbott used to say, 'When it is finished, the parkway should look like it was built there, where it just fitted. Any reshaping of the ground should not look obvious.'

What we did, the whole object was to take advantage of what nature had put there for us and to show it to the best advantage. Enhance it if we could, screen out things that were bad.

It was a judgement matter every step of the way. The people, (landscape architects) who did the maps were supposed have good judgement.

Which sections of parkway were you associated with?

I worked in North Carolina, developing Doughton Park first, then down to Asheville. Then the work was interrupted by World War Two. The Blue Ridge Parkway couldn't open through that area.

What were the key issues, or aims, for you as a landscape architect in designing with the BRP?

We wanted to take advantage of what we had of the scenery, not do anything that would destroy any natural features which should be preserved. We wanted it to fit into the topography and into the use of the land. Mr. Abbott was quite concerned with what he thought was unique, the mountain farm scenery. It was unique. We wanted to do what we could to preserve that. We wanted to be reasonable with the farmers. For example, the farmers had no barns to store their hay. They left hay in field in stacks. That is disappearing now. Often we leased the land to a farmer to cut hay on the condition that it be stacked in the field until he used it.

What were the main problems in achieving these aims?

A lot of it was in getting along with the local people. Stan Abbott and Ed Abbuehl. Stan was given the choice of whether to stay on as landscape architect or superintendent. The job too much for one person. Abbott chose landscape architecture. Weems was the best man for the superintendent at that time. He understood what the parkway wanted to be at that time and was one hundred percent for it. Many local people did not know what a parkway was. They heard all sorts of rumors. The Farm to Market road system was being built for relief and to make employment during depression. People thought the parkway would be a Farm to Market road. Many did not like what it actually was. Most landscape architects, as they got to know the mountain people, got to talk with them and they came around to appreciating the parkway.

How was collaboration with the other design professionals carried out?

We collaborated with the state people. Every contract that was let, the state people were kept informed of what was going on and what the parkway would be. I attended a meeting in Abbott's office with representatives from the Virginia Highway Dept, the Virginia Forest Service and the State of Virginia. His office was crammed full. The object was to make a memorandum of understanding, to agree on certain things. Those people would accept those things for their state and it included anything they were

concerned with as related to the Blue Ridge Parkway. Everything was discussed at length. Abbott was a genius at that. He could write a memo that covered all those things that everyone would sign.

The landscape architects were not arbitrary except about views. We would not skin all the trees off a mountain to make a view but we wanted to create views or enhance them. We would mark on the land use maps if the land could be used for farm use, or forested.

Within the right of way, we were limited. On National Forest Land we could take a broader view. They, (the NFS), were most cooperative. In a few cases, privately owned property let the Blue Ridge Parkway extend its concerns beyond the actual ownership. It all had to be worked out as we went along.

Which profession had final say for decisions related to road location and alignment, erosion control, planting, etc.?

The final location decision had to be made on the ground. First it was located on maps, like Shenandoah headed to the Smokies. The idea was to stick on the high land, and stay there as much as was practicable. This narrowed the location.

Then we had to walk it, and to decide which side of mountain was best for construction and scenery. After so long a time we were committed to a general situation. We tried to be consistent with things, (design approach or details), in one place and when we found the same situation elsewhere.

A prime concern in location was runoff from rain and snow. We tried, in general, to put drainage into the same channel it had been going into naturally. Sometimes this was not easy, but it could be done, generally, with a little thought.

We considered the ultimate disposal of the water and tried to get it into original watershed. The whole idea was to try to make as little upheaval of the natural scene as possible. We were successful in that more times than not. In some places the parkway, and sometimes outside development, affected drainage from the parkway. We worked with the state highway and private individuals to help solve drainage problems and would help with advice on private land. We could not help with money on private land. If you could point out the benefits to the private land owner, the individuals would often do it, (repair the drainage problem.)

The engineers determined the size of the drainage structures. On section 2A in North Carolina, there was a creek that ran along it. The parkway crossed that creek seven times in that section. The Bureau boys designed those bridges and many locals told them 'you would never need those bridges.'

Then in 1940, floods occurred in the Galax area. I drove from Galax and down to Deep Gap. Each one of those bridges was running at full capacity. There was a little trash on bridge from overflow flood water. The engineers were exactly right in their calculations or we would have had a thirteen-mile washout.

I had few serious disagreements with engineers. We could work out problems pretty easily. The landscape architects were sometimes concerned about the gullying of land, and maybe taking the drainage in a different direction. Where the water went didn't concern the engineers. They didn't care if it turned left or right and would take it where the landscape architects wanted it.

In the early days, the ERA and CCC crews used to take care of erosion. We would try to stop it and heal it over with grass and greenery.

We were not 100 percent successful but we tried. Once or twice we built ponds to look nice and check flow of drainage. But we did not make a specialty of it.

What were the objectives of the planting design approach?

If I thought that they needed something planted, I would indicate it on the plan. Occasionally I would mark nice big trees as specimens not to be cut. Sometimes I indicated a lot of growth needed to be cleared out. It was a matter of judgement.

Wildlife and ecology all came into play. Later on the Park Service got a naturalist on the payroll to look after those things. All projects in Virginia were numbered 1 and in North Carolina were numbered 2 (on the drawings and contract documents). Each one was a separate construction project. Each averaged about ten miles. Within that section, the stakes for construction were put in by Bureau of Roads...those stations were then shown on the land use maps. We were able to tie it together that way. Later the mile posts were put in.

The whole thing had to go together, one section to the next. That was our job. It had certain limits. Things developed as we went along. The Park Service has policies about development and we had to keep that in mind. Occasionally what we thought would be good, would develop a conflict with a policy and that would have to be studied. We tried not to go roughshod.

There was a policy that traffic should not go off the pavement and take off into the woods. In development plans I would try not to make it convenient for people to take an all terrain vehicle off the road and damage the land. I might put boulders in a small space. If it was a large area, I might include a rail fence. Rail fences were also unique to mountain agricultural scene and we used them wherever we could. We made rail fences by the thousand to use on the parkway. At one time we had a lot of dead chestnut. This is one of the best woods for fences. It is easy to split and long lasting. We cleared out the undesirables, (Chestnut), then made fence posts and rails of them.

Where were the plants obtained?

They were bought from a local nursery. There were nurseries all along the parkway. We had to consider the fact that nursery grown plants are better, in some respects, easier to move, than ones collected in field. But we did collect plants that were not available from nurseries. We collected some from areas on parkway not visible from parkway. Some azalea and rhododendron were not available from nursery.

The nursery might deliver the plants or we might pick up from the nursery.

We had to use natives to that particular area. We never introduced a variety.

How did you know the plants?

Most of the crews were local people who knew the local trees and plants. We would check with them to make sure that they were calling trees by the same name as the locals, and that they understood what they were referring to on the plan. We had very little trouble in that regard. Many of the locals had collected material. In the early days of the

parkway, there were locals who collected material, like rhododendron in the hundreds and sent them to northern markets.

You had to be careful with common names. In some areas, laurel meant rhododendron. In other places, if you wanted Kalmia Laurel they thought that was ivy. You had to straighten those things out.

Landscape architects were expected to know the plants and to be able to identify them. I was familiar with the plants, took it on myself to make sure what every plant was the one we would be concerned with. At that time, most of the local people knew just about every plant in their surroundings but they might have a different name for it.

What was the caliper of the largest plants used and what were they?

Poplar was the largest plant used. Moving large trees is expensive. Maples are shallow rooted. You could move those successfully up to a good size. Others, like the oak with taproot, it is best not to move a large one. You lose too many. That root system is a problem. Pretty soon you might have to have a derrick to move it. We did use men and machinery to move trees but tried to limit planting of large trees to places they would be definitely needed for a particular reason.

Do you think the original design/plan for the BRP was ahead of its time or very much a product of its time?

The concept of the parkway...well, several people had suggested a parkway for the area but mostly they thought of it as a highway. The Westchester parkway was the first parkway. There were some in Europe. That may be where the idea came to us. The Blue Ridge Parkway was by far the largest undertaken in this country. Since then, the Natchez Trace was undertaken and the Colonial Parkway, and several others. But they came later, or as a result of the parkway. I think that up until then roads were roads. The park service gave more consideration to the construction damage than most states did. The parkway idea was pretty new when the parkway was started. The limited access was new and many people did not understand it. Quite a rapid change came with the parkway. The parkway idea was new to a lot of people. Up until then highways were utilitarian, it was 'go the straightest way, and clear things out of the way.' A highway for scenic and recreation purposes was completely new.

If you could change one aspect of design, what would it be?

I don't know how to do it better than walk over it, study it, ride over it. I have felt pretty well pleased with what we did. From time to time, we would change something as we went along, not drainage but details. Sometimes, for example, there was a culvert every 300 or 400 feet to take drainage. If let loose, the water will take a more direct route. By extending the pipe some or doing a little bit of grading you can get that water into a natural channel and it will do less damage. You have to remember that you have flood conditions up there.

I don't get on parkway any more, I can't drive. My eyes are bad. I used to see little things now and then. But I purposely did not travel on the parkway very much after retirement because I knew most of the people who were doing the maintenance, they would see me and flag me down to ask questions about the maintenance. I was retired, other people should be making those decisions and answering those questions.

In general, the Blue Ridge Parkway maintenance is true to original aims for views. One or two places, no. One landowner had his timber clear-cut and left an awful mess. It worried you to look at it but eventually grew over in greenery. On private land nothing can be done. Some developments don't hurt too much and will gradually blend in to the landscape. I wish clear cutting would not happen. In terms of view, you might as well accept what you cannot control.

I feel that there is a growing appreciation for long-range appearances and use patterns. Things are better than 50 years ago. Views have not improved that much. But we improved some views on Blue Ridge Parkway land by lengthening them or framing them.

Some views are steep from the parkway, For example, 100 feet above the ground can be seen over, so a big tree or stand of trees is looked over, toward a distant view.

How do you think the parkway landscape (plants), should be managed as it evolves over time?

Plant growth is a continuous process, Something is growing somewhere and dying somewhere. The views are as permanent as can be reasonably expected. Pine tree blight and other plants which are lost to disease will affect the scene. When I was planning , I tried to pick out suitable plants in the neighborhood. Some have grown up and died and others maybe have replaced them. It is natural to have different ones. You can replace trees with seedlings if you take long range view. Sometimes these seedlings take better.

Each situation has to be studied on its own. There is no standard answer to every situation, Many factors are involved. In general, everyone in the design process did what they thought best. Successful, generally, don't expect 100% success.

Abbott and Abuehl had most influence on design and whole parkway picture. They were the most influential.

APPENDIX TWO – QUANTITATIVE MATERIALS

1. How many people on the site? (1) none (2) 1-2 (3) 3-4 (4) 5-6 (5) 7-8 (6) 9-10 (7) 11-12 (8) 13-14 (9) 15-16 (10) 17-18 (11) 19-20 (12) 21-22 (13) 23-24 (14) 25-26 (15) 27-28 (16) 29-30 (17) 31-32 (18) 33-34 (19) 35-36 (20) 37-38 (21) 39-40 (22) 41-42 (23) 43-44 (24) 45-46 (25) 47-48 (26) 49-50 (27) 51-52 (28) 53-54 (29) 55-56 (30) 57-58 (31) 59-60 (32) 61-62 (33) 63-64 (34) 65-66 (35) 67-68 (36) 69-70 (37) 71-72 (38) 73-74 (39) 75-76 (40) 77-78 (41) 79-80 (42) 81-82 (43) 83-84 (44) 85-86 (45) 87-88 (46) 89-90 (47) 91-92 (48) 93-94 (49) 95-96 (50) 97-98 (51) 99-100 (52) 101-102 (53) 103-104 (54) 105-106 (55) 107-108 (56) 109-110 (57) 111-112 (58) 113-114 (59) 115-116 (60) 117-118 (61) 119-120 (62) 121-122 (63) 123-124 (64) 125-126 (65) 127-128 (66) 129-130 (67) 131-132 (68) 133-134 (69) 135-136 (70) 137-138 (71) 139-140 (72) 141-142 (73) 143-144 (74) 145-146 (75) 147-148 (76) 149-150 (77) 151-152 (78) 153-154 (79) 155-156 (80) 157-158 (81) 159-160 (82) 161-162 (83) 163-164 (84) 165-166 (85) 167-168 (86) 169-170 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Pilot Survey

Survey related to the Blue Ridge Parkway Video - April 30th 2002

Milepost 152 south to Smart View Picnic Area, Va. – video taped 10-07-02

Using ratings of 1 –5, 1 being lowest, 5 being highest, circle the number that applies:

1. I have driven on the Blue Ridge Parkway:

(1) never (2) once (3) a few times (4) (5) five or more times

2. The sensation of speed for this road is:

(1) too fast (2) (3) okay (4) (5) too slow

3. The overall scenic quality is:

(1) poor (2) (3) all right (4) (5) very attractive

4. The scale of the width of the road relative to adjacent landscape seems:

(1) too small (2) (3) just right (4) (5) too big

5. Trees near the edge of the road:

(1) are unattractive (2) (3) neutral (4) quite attractive (5) very attractive

6. The “fit” of the road to the terrain was:

(1) poor, uncomfortable (2) (3) neutral (4) (5) very good, it seemed to fit with surrounding topography

7. The variety of landscape scenes was:

(1) too few - boring (2) (3) okay (4) (5) pleasing, there were enough so that I wasn't bored

8. The overall visual quality of the road is:

(1) Poor (2) (3) neutral (4) (5) very attractive

9. The overall feeling of driving on this road is:

(1) frightening (2) boring (3) okay (4) relaxing (5) exhilarating

10. Compared to other roads I drive on a regular basis, I would rate this driving experience as:

(1) inferior, I didn't like it (2) (3) about the same (4) (5) superior, I enjoyed it

11. The fences are:

(1) unattractive (2) (3) neutral (4) mod. Attractive (5) very attractive, add to the overall scenery

12. The most attractive scenes are:

- (a) Open fields
- (b) woods
- (c) Distant hills or small mountains
- (d) Sequences of fields and woodland
- (e) Sequences of fields, woods and distant hills

13. Use two words to describe the feeling of travelling on this road.

14. Was there something you wished that I had asked on the survey? If so, please explain.

**Survey related to the Scenic Qualities of the Blue Ridge Parkway - June 21, 22, 23
2002**

Mabry Mill, Virginia Rest Area, Milepost 176.1

ABOUT YOURSELF AND YOUR JOURNEY TODAY

1. The purpose of my journey on the Blue Ridge Parkway is:

- (1) leisure, to enjoy driving the parkway itself
- (2) work related – if so, what?
- (3) destination oriented, I am on my way to a place off the parkway
- (4) destination oriented, to one of the state or national parks on the parkway

2. My time on the parkway will be about:

- (1) less than a day
- (2) 1 – 2 days
- (3) more than 2 days

3. I have driven or been a passenger on the Blue Ridge Parkway:

- (1) never
- (2) once before
- (3) 2 -3 times
- (4) 3- 5 times
- (5) more than 5 times –

If your answer was (2) - (5), were your previous visits:

- (1) as a child
- (2) all or mostly a while ago
- (3) all or mostly in the last five years

4. The vehicle I am driving/riding-in is a:

- (1) Standard car
- (2) motorcycle
- (3) Sports Utility Vehicle
- (4) Camper < or = 15' long
- (5) Camper > 15' long

5. Circle one: (1) I am driving the vehicle (2) I am a passenger in the front seat

- (3) I am a passenger in the rear seat

6. My age range is:

- (1) less than 20
- (2) 20 – 40
- (3) 40 – 50
- (4) 50 – 70
- (5) over 70

7. I am: (1) male (2) female

8. I am from _____

9. My main occupation is _____

10. (circle one) I am driving SOUTH / NORTH on the parkway.

11. I have driven approximately _____ **miles since my last major rest stop.**

12. My feelings on the overall scenic experience of today's drive on the parkway are that I:

- (1) didn't like it at all
- (2) didn't like it very much
- (3) neither liked nor disliked it
- (4) liked it a fair amount
- (5) liked it a lot

13. Use two words to describe the feeling of travelling on the Blue Ridge Parkway.

14. Use two words to describe the feeling of travelling on an interstate you know or use regularly:

YOUR EXPERIENCE OF THE BLUE RIDGE PARKWAY

Please circle one answer only for each statement below

15. I find the variety of scenery along the parkway to be:

- (1) Boring, not enough variety (2) Predictable (3) Okay (4) Good
(5) Delightful, there are many different and interesting views

16. The curves on the parkway road:

- (1) make me anxious (2) make me uncomfortable but not frightened (3) did not matter to me
(4) are pleasant (5) are exhilarating

17. The parts of the motor road that I prefer are:

- (1) straights (2) curves in one direction (3) a curve one way linked to a curve in another direction

18. The gradients uphill and downhill on the parkway road were:

- (1) Too steep/unpleasant (2) quite steep/unpleasant (3) did not matter to me (4) quite pleasant
(5) very pleasant

19. The changing alignment of the parkway road is:

- (1) Far too repetitive (2) Somewhat monotonous (3) Neutral (4) Fairly Pleasant
(5) Graceful, I really enjoyed it

20. The width of the paved road relative to the surrounding landscape seemed:

- (1) far too narrow (2) relatively narrow (3) appropriate (4) relatively wide (5) much too wide

21a. Trees near the edge of the road are :

- (1) unattractive (2) not very attractive (3) neutral (4) quite attractive (5) very attractive

21b. Trees near the edge of the road appear to be:

- (1) unsafe (2) somewhat unsafe (3) neutral (4) relatively safe (5) not a hazard at all

22. The "fit" of the road to the terrain was:

- (1) very poor, the road was an imposition on the land (2) moderately poor (3) neutral
(4) fairly good (5) very good, it seemed to fit like a glove with surrounding topography

23. The quality of daylight during my drive was:

- (1) dark, cloudy or rainy (2) overcast (3) fair, diffused light (4) moderately bright
(5) very bright, direct sunlight

24. The duration of each view of a landscape scene (i.e., farm, wood, vista) was:

- (1) Far too long, I was bored (2) Somewhat too long (3) Long enough for me to enjoy it but not be bored (4) A bit too brief (5) Far too brief, I wanted more time to take in the views

25. Scenes or aspects of scenes I liked the best were:

26. Scenes or aspects of scenes I cared for the least were:

27. I noticed the scenery on the parkway road _____ than I usually do on other roads.

(1) Less (2) About the same (3) More

28. Describe the overall feeling of driving/riding on the parkway:_____

29. Compared to other roads I drive on a regular basis, I would rate this driving experience as: (1) inferior (2) somewhat inferior (3) about the same (4) somewhat better (5) definitely superior

30. Rate the following parkway scenes by circling the appropriate number:

Very Unattractive (1) Unattractive (2) Neutral (3) Attractive (4) Very attractive (5)

(a) Open fields	1	2	3	4	5
(b) Open fields, farm buildings and farm animals	1	2	3	4	5
(c) Woods	1	2	3	4	5
(d) Distant hills or small mountains	1	2	3	4	5
(e) Sequences that combine fields and distant hills	1	2	3	4	5
(f) Sequences that combine fields, woods and distant hills	1	2	3	4	5
(g) Mountain vistas	1	2	3	4	5

31. The colors and textures of the various plants I see on the parkway had the following effect:

- (1) I find them distracting from my pleasure
- (2) I find them Inconsequential, they don't seem to add much to the scenery
- (3) They are neutral
- (4) They contribute somewhat to my enjoyment of the scenery
- (5) They are an important contribution to my pleasure

32. Broad, open views, such as fields and vistas are:

- (1) Too bland and boring
- (2) Somewhat bland and boring
- (3) Neutral
- (4) Somewhat pleasant and calming
- (5) Pleasant, calming and give a sense of relaxation and repose

33. Circle up to 5 words that best describe the Blue Ridge Parkway:

Beautiful, Graceful, Sublime, Elegant, Imaginative, Delightful, Harmonious, Variable, Undulating, Serpentine, Gentle, Pleasing, Easy, Mysterious, Incongruous, Disjointed, Chaotic, Rough, Ugly, Crude, Dull, Inelegant, Predictable, Unpleasant, Clashing, Aggressive, Hilly, Switchback, Unpleasant, Awkward

Please use the space below for any additional remarks or observations.

THANK YOU FOR YOUR TIME

Crosstabs Chi Sq Pilot Survey - Q1 prev.trips Q10 rate the exp

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
I have driven on the BRP: * Compared to other roads I drive on a regular basis, I would rate this driving experience as:	41	97.6%	1	2.4%	42	100.0%

I have driven on the BRP: * Compared to other roads I drive on a regular basis, I would rate this driving experience as:

Crosstabulation

Count

		Compared to other roads I drive on a regular basis, I would rate this driving experience as:		Total
		inferior, I didn't like it	superior	
I have driven on the BRP:	never or once	7	22	29
	more than five times	1	11	12
Total		8	33	41

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1.350 ^b	1	.245		
Continuity Correction ^a	.531	1	.466		
Likelihood Ratio	1.534	1	.216		
Fisher's Exact Test				.398	.241
Linear-by-Linear Association	1.317	1	.251		
N of Valid Cases	41				

a. Computed only for a 2x2 table

b. 1 cells (25.0%) have expected count less than 5. The minimum expected count is 2.34.

Crosstabs Chi Sq Pilot Survey Q 7 variety and Q9 overall feeling

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
The variety of landscape scenes was: * The overall feeling of driving on this road is:	41	97.6%	1	2.4%	42	100.0%

The variety of landscape scenes was: * The overall feeling of driving on this road is: Crosstabulation

Count		The overall feeling of driving on this road is:		Total
		boring, okay, or exhilarating	relaxing	
The variety of landscape scenes was:	okay or boring	5	13	18
	pleasing	1	22	23
Total		6	35	41

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	4.437 ^b	1	.035	.070	.048
Continuity Correction ^a	2.760	1	.097		
Likelihood Ratio	4.640	1	.031		
Fisher's Exact Test					
Linear-by-Linear Association	4.329	1	.037		
N of Valid Cases	41				

- a. Computed only for a 2x2 table
- b. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 2.63.

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